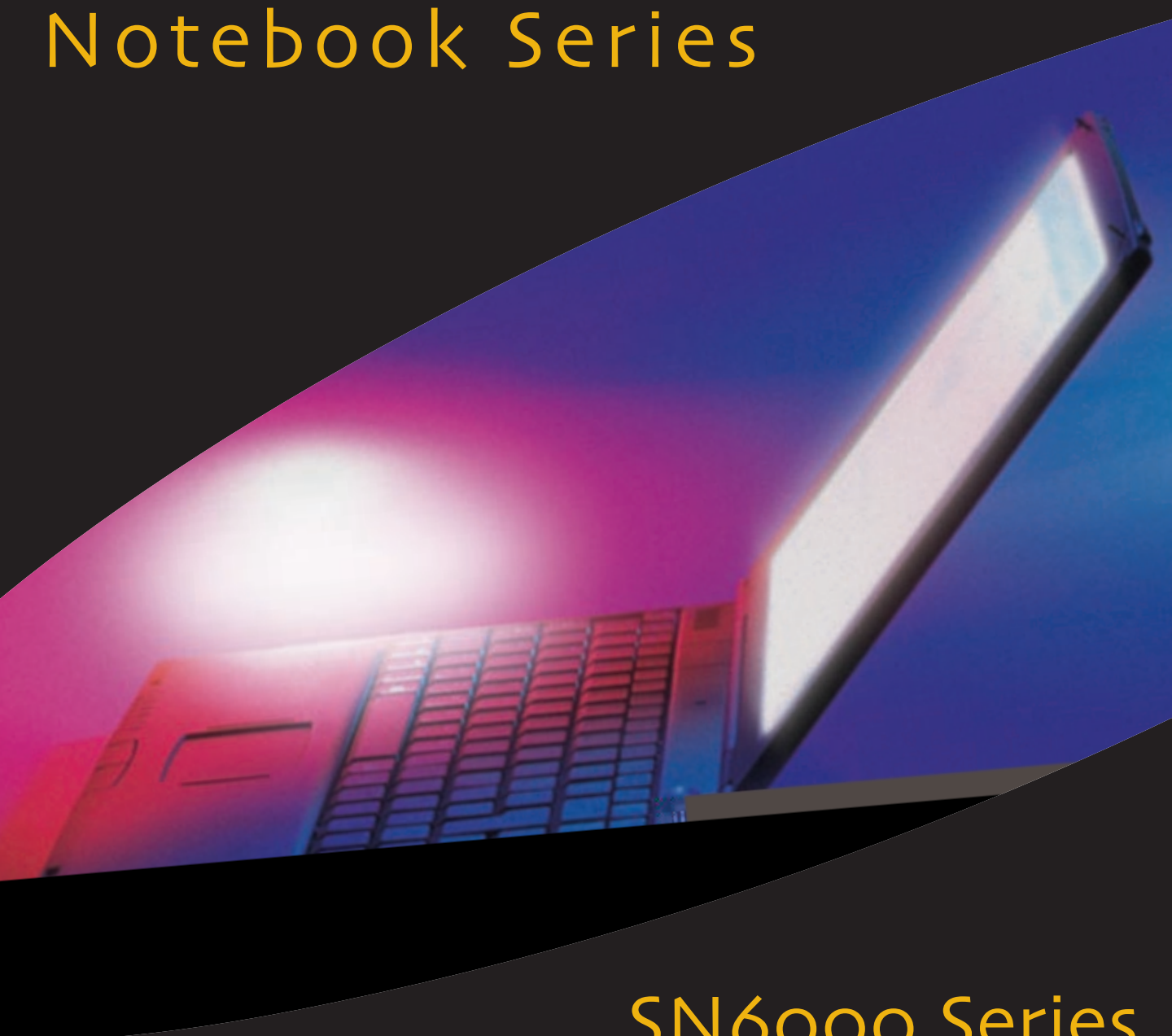




**SAMSUNG**

Notebook Series



SN6000 Series  
**Users Manual**

***Challenge the Limits***

First edition (January 1999)

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## Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, it may cause harmful interference in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: "Something About Interference." This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by your company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

## Description of EUT

Samsung SN6000 Series Computers

## Model Numbers

Samsung SN6000 Series Computers

## International

If your equipment has a CE Mark, please note the following International CE Mark information below.

### CE Mark

Samsung Computers sold in Europe comply with the following directives and standards:

### Directives

Low Voltage Directive 73/23/EEC

EMC Directive 89/336/EEC and Amending Directive 92/31/EEC

CE Marking Directive 93/68/EEC

## Standards

Emissions

EN50081-1:1992(EN55022:1994+A1:1995 Class B)

EN61000-3Part2,3:1995

Safety

EN60950/A4:1997

Immunity

EN50082-1:1992

IEC801-2:1991/prEN55024-2:1992

IEC801-3:1984/prEN55024-3:1991

IEC801-4:1988/prEN55024-4:1992

## Manufacturer

Manufactured by AST Ireland Ltd for Samsung Electronics Computer Division at:

Raheen Industrial Estate

Limerick

Ireland

## Signed Declaration of Conformity Documents

Signed Declaration of Conformity documents for Samsung Notebook products are on file at the Samsung Electronics facility located at:

Samsung Electronics Co. Ltd

225 Hook Rise South

Surbiton,

London,

KT6 7LD

UK

# CLASS 1 LASER PRODUCT

## CAUTION

The laser beam used by this CD-ROM drive unit can be harmful to the eyes. Do not attempt to open the unit. All service procedures should be performed by an authorized dealer or distributor.

## WARNING

Never use any optical instruments in conjunction with this unit. To do so will greatly increase the hazard to your eyes.

## ADVARSEL

USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION.

SE IKKE I NØJESTE STRÅLENE - HELLER IKKE I OPTISKE INSTRUMENTER.

## ADVARSEL

USYNLIG LASERSTRÅLING NÅR DEKSELÅPNES OG SIKKERHEDSLÅSBRYTES. STIR IKKE I NØJESTE STRÅLENE ELLER SEDIREKTE I OPTISKE INSTRUMENTER.

## LUOKAN 1 LASERLAITE.

## VAROITUS!

LAITTEEN KÄYTTÄMINEN MUULLAKUIN TÄSSÄ KÄYTTÖOHJEESSA  
MAINITTUNA TAVALLA SAATTA AALTISTA KÄYTTÄJÄN  
TURVALLISUUSLUOKAN 1 YLITTÄVÄLLEN AKY MÄTTÖMÄLLE  
LASERSÄTEILYLLE.

## KLASS 1 LASER APPARAT.

## VARNING

OM APPARATEN ANVÄNDSPÅ ANNATSÄTTÄN IDEN NABRUKSANVISNING  
SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASER-  
STRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

Labels appearing on the drives:

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO  
BEAM.

VORSICHT! UNSICHTBARE LASERSTRAHLUNG TRITTAUS, WENN DECKEL  
GEÖFFNET. NICHT DEM STRAHLE AUSSETZEN!

VARNING-OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD.  
STRÅLENA ÄR FARLIGA.

ADVARSEL-USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDS/ETTELSE  
FOR STRÅLING.

CLASS 1 LASER PRODUCT LASERSCHUTZKLASSE I PRODUKT TO EN 60825

## Important Safety Instruction

### **Read all of these instructions, and save these instructions for later use.**

- Follow all warnings and instructions marked on the product. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water. Never spill liquid of any kind on the product.
- Do not place this product on an unstable cart, stand, or table.
- Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
- Before connecting this product to a power source, check the required voltage and frequency match the available power source.
- This computer is powered by an internal battery pack or by an external AC power source through an external AC adapter. Use of another battery pack or external AC adapter may present risk of fire or explosion.
- This product is equipped with a 2-wire type plug. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
- Do not allow anything to rest on the power cord.
- Do not place this product in a location where someone may trip over the cord.
- If an extension cord is used with this product, make sure that the total of the ampereratings on the products plugged into the extension cord do not exceed the extension cord ampererating.
- Never push objects of any kind into this product through the cabinet slots, as they may touch dangerous voltage points or short out parts; that could result in a risk of fire or electric shock.
- Except as explained elsewhere in this manual, do not attempt to service this product yourself.
- Handle battery, floppy and CD-ROM drives with care. If dropped, they may be damaged.
- Do not allow the battery to be exposed to direct sunlight for extended periods of time.

- Do not attempt to disassemble the battery. If the battery is disassembled and the electrodes are exposed to outside, the battery may generate heat and smoke by chemical reaction.
- Do not expose the battery to moisture or chemicals.
- Charge the battery only as described in this document.
- Do not short circuit the battery terminals as the resulting high currents can damage the battery.
- The battery should not be used to power other products.
- Do not dispose of a used battery in a fire or incinerator, as an explosion may result.
- The battery should be recycled.
- Do not subject the battery to temperature less than -20 degrees Centigrade or greater than 50 degrees Centigrade.
- Unplug this product from the wall outlet and refer problem to the service representative under the following conditions:
- When the power cord or plug is damaged or frayed.
- If liquid has been spilled into product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed, adjust only those controls that are covered by the operating Instructions. Improper adjustment of other controls may result in damage.

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# Using Your Documentation

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Congratulations on your purchase of a Samsung SN6000 Series computer! Whether you are new to using a portable computer or are an experienced user, your SN6000 Series documentation can help you get the most from your computer. Your computer comes with the following documentation:

- The *SN6000 Series Quick Start*
- The Online *SN6000 Series User's Manual*
- Third-party software user documentation

To get up and running quickly, see your *SN6000 Series Quick Start*. When you need more in-depth information, turn to your online *SN6000 Series User's Manual*.

The following sections tell you where to look for the information you need.

## SN6000 Series Quick Start

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You can use the quick start to

- Check your package contents
- Get tips on how to quickly set up and use your computer
- Get a listing of the computer's features and specifications

## This User's Manual

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This user's manual can help you to

- Learn how to use your computer.
- Learn safety and maintenance tips.
- Learn how to configure your computer.
- Get answers to troubleshooting questions.

# Opening the Online Manual

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Your SN6000 Series online manual is included on the computer's hard drive in PDF format. You can view the manual through the Adobe™ Acrobat™ Reader, which is also included on the hard drive.

To open the online manual:

1. Click the Start button on the Windows taskbar.
2. Select *Programs*.
3. Select *SN6000 Series Online Manual* .
4. Click *SN6000 Series Online Manual* in the SN6000 Series Online Manual folder. Your online manual appears on the screen.

## Getting Around in the Online Manual

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Go to the Acrobat Reader Help for tips on using the Reader toolbar buttons to get around in the online manual.

To open the Help:

1. Click *Help* on the Acrobat Reader menu bar.
2. Click *Reader Online Guide* .

## Using Hypertext Links in the Online Manual

---

Hypertext links are built into the online manual to take you quickly from one page of the manual to another. You can click on a hypertext link to go directly from the link to the topic connected to the link.

When the screen cursor is on a hypertext link, the cursor changes from an open hand to a hand with a pointing index finger. When you see the cursor change, click the link to jump to the linked topic:

- Click on a section title in the Content to jump to that section in the manual.

- Click on a page number in the Index to jump to that page in the manual.
- Click on a cross-reference in the text to jump to the section that is referenced.

## Special Features of the User's Manual

---

Three types of messages with icons appear in the manual:



**A note informs you of special circumstances.**



**A caution warns you of possible damage to equipment.**



**A warning indicates the possibility of personal injury.**

Keys that you need to press to perform certain functions are shown in the manual enclosed in angle brackets. For example,

<Ctrl>

indicates the control key (Ctrl on the computer's keyboard).

If you need to press two keys at the same time, the key names are shown joined by a plus sign. For example,

<Fn+F11>

means that you should press the Fn key and hold it and then press the F11 key.

If you are new to using computers, see the Glossary. The Glossary explains general computing terms that are used in this manual and tells you about some of the differences between portable computers and desktop computers.

# Using the Software Documentation

---

Your computer shipped from the factory with several software programs installed. The software may include its own nonline or printed documentation. Refer to the documentation or the Help options in the software for more information.

## Visiting the Samsung Web Site

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If you have an internet connection, you can visit the Samsung Website at:

<http://www.samsungpc.com>

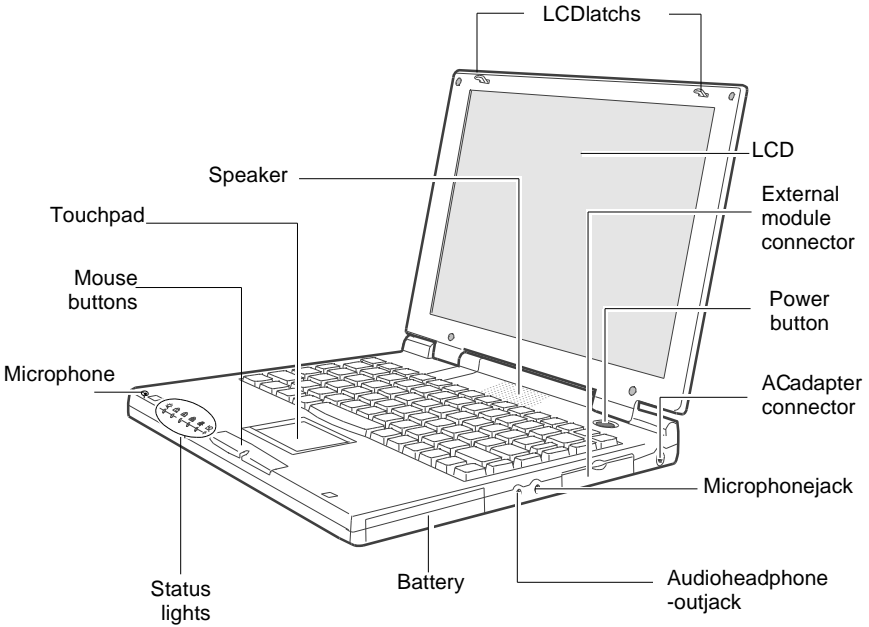
Updates on your computer and other Samsung products are periodically added to the Website.

# Introducing Your Computer

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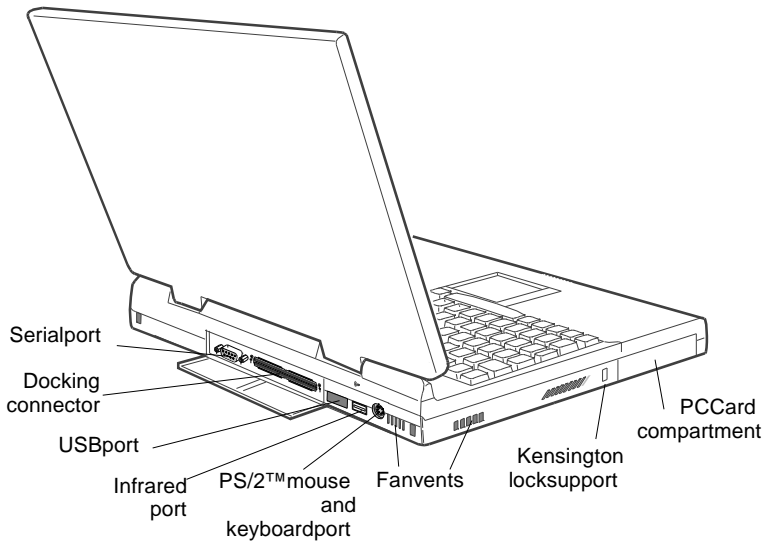
Your SN6000 Series computer is an ultra-thin light weight portable computer that includes features to meet your computing needs at home or on the road. A port replicator is supplied with each SN6000 Series system, see Figure 12 on page 25 for more information.

Figures 1 through 3 show you the features of your computer.

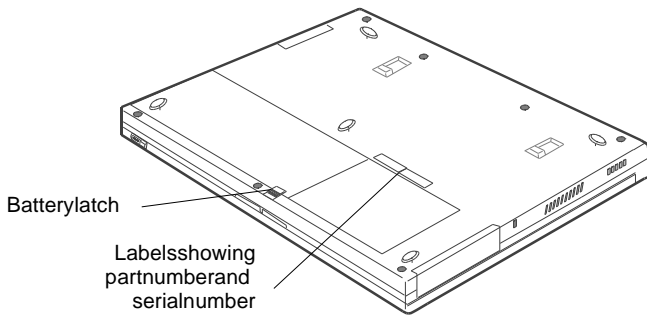


*Figure 1. Front View of Computer*





*Figure 2. Back View of Computer*



*Figure 3. Bottom View of Computer*

# Using Your Computer for the First Time

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This section gives you detailed information on using your computer for the first time.

## Attaching the AC Adapter

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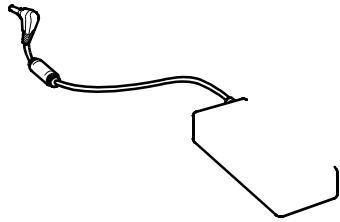
Your computer runs on power from the battery that came installed in the computer or from an electrical outlet. The first time that you use your computer, fully charge the battery by attaching the AC adapter to the computer and to an electrical outlet. Your AC adapter can accept an input voltage of 100 to 120 VAC or 200 to 240 VAC.



**All batteries lose their charge if they sit unused for an extended time period. When not used, your SN6000 Series battery can discharge fully in 2 to 3 months. The battery may have discharged in the time it took for the computer to go from the factory to you.**

To attach the AC adapter:

1. Plug the AC adapter into the power connector on the right side of the computer (Figure 4).
2. Connect the power cord to the AC adapter and then to an electrical outlet.



*Figure 4. Connecting the AC Adapter*

The battery starts charging as soon as you plug the AC adapter into an electrical outlet. The battery charges faster if the computer is turned off during charging.

If the battery is fully depleted and the computer is turned off, the battery charges in about 2.5 hours. If the computer is turned on, the battery charges in about 4 hours. When the battery is charging, the battery charge light is amber. When the battery is fully charged, the light turns green.

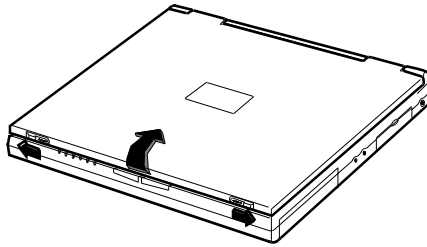
See “Using the Battery” on page 38 for more information on using your computer’s battery.

## Turning On the Computer

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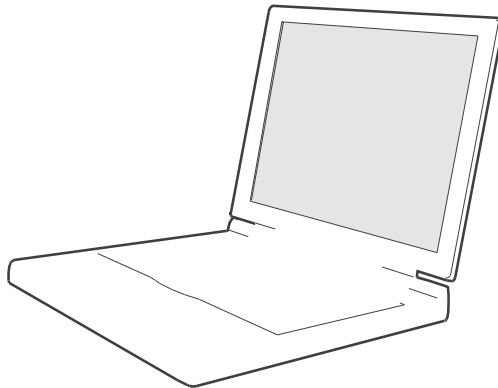
To turn on the computer’s power for the first time:

1. Slide the LCD cover latches apart and hold them (Figure 5).
2. Lift up the LCD cover.



*Figure5. Opening the Computer*

3. Press and then release the power button (Figure 6).  
The power light is on when the computer's power is on.



*Figure6. Turning On the Computer's Power*

## Understanding POST

---

When you turn on your computer, a routine called POST automatically runs to test the computer components. The Samsung logo appears on the screen during POST, if you press the **ESC** key while the Samsung logo is displayed you will see several messages on the screen (see

“BootMenu” on page 56 for information on disabling the logo screen). After POST is successfully completed, the computer beeps once.

Screen messages are built into the computer to report both normal and abnormal system conditions. If an error message appears, take any actions suggested in the message. If the message identifies the error condition but does not suggest any corrective action, write down the message and contact Samsung or an authorized Samsung service center for assistance. (See “Troubleshooting” on page 87 for information on contacting Samsung.)

## Adjusting the LCD Display

---

You may wish to adjust the LCD display when you begin using your computer. ATFTLCD does not require adjustment for contrast because the contrast is set to remain at maximum.

To adjust the brightness of the LCD:

- Press <Fn+Right Arrow> to increase the display brightness.
- Press <Fn+Left Arrow> to decrease the display brightness.

## Turning Off Your Computer

---



**If your computer has a Windows operating system, turn off your computer by performing the shutdown procedure described in this section. Otherwise, you may lose data.**

To turn off the computer:

1. Click Start on the taskbar.
2. Click *Shut Down*.
3. Select the shutdown option.
4. Click OK or Yes.
  - If the operating system is Windows 98, the computer turns off.

- If the operating system is Windows NT, you receive a shutdown message and must press the power button to turn off the computer.

## Restarting Your Computer

---

You may need to restart (reboot) your computer when installing hardware or software or if the computer does not respond to your input. A warm (or soft) boot prompts you to save your files, turns off the computer, and then restarts the computer. A cold boot turns off the computer without saving your files.



**Do not perform a cold boot unless your keyboard and touch pad have no effect and you cannot perform a warm boot.**

**When you perform a cold boot, you lose data unless it was saved to a storage medium.**

To perform a warm (or soft) boot:

1. Click the Start button on the taskbar.
2. Click *Shut Down* .
3. Select *Restart the Computer* .
4. Click the Yes button.
5. Save your files if prompted. Your computer reboots.

You can also perform a soft boot by saving your files and pressing <Ctrl+Alt+Del> and then clicking on *Shut Down* .

You can perform a cold (or hard) boot by pressing the power button to turn the computer off, waiting five seconds, and then pressing the power button to turn the computer on.

## Tips for Using Your Computer

---

The following information helps you avoid potential problems as you use your computer:



**Do not try to disassemble your computer. Opening the system chassis voids your warranty. Only an authorized Samsung service center can replace or add any parts inside the chassis.**

- Follow all the instructions and cautions in your computer user documentation.
- The LCD has a polarized surface and can be damaged easily. To prevent damage, avoid touching the screen.
- Use only Samsung approved AC adapters, automobile adapters, airline adapters, and memory modules.
- Because a portable computer is small and has restricted air flow around components, it is more likely to overheat than a desktop computer. A fan inside your computer helps to eliminate some heat. Make sure the fan vent on the side of your computer is not blocked when you use the computer. (See Figure 2 on page 6 for the location of the vent.) Occasionally check the vent and remove any accumulated dust on the outside.
- Avoid using or storing the computer in extremely hot or cold areas, such as a car on a hot day. Keep the computer away from heaters and out of direct sunlight. Exposure to excessive heat may damage computer components.

If you have left your computer in a hot place, let it cool down slowly to room temperature (with the LCD panel open) before using it.

- Set up your computer work area to avoid physical strain. Sit with your back straight and supported by your chair. Adjust your chair or work table so that your arms and wrists can remain in a relaxed position, parallel with the floor. Avoid bending or twisting your wrists as you work. Your hands should “float” slightly above the keyboard. Refer to a book on office ergonomics for more information on setting up your work area.
- Take frequent breaks from working at the computer to rest your eyes and stretch your muscles.
- Remember to save your data files frequently and to make backup copies of your files.

# Traveling with Your Computer

---

If you are traveling by airplane, follow these tips:

- Take the computer with you as carry-on luggage. Do not check the computer with your baggage.
- Allow the computer and disks to go through the X-ray security devices. Do not hand-carry disks through the walk-through metal detectors, which can cause loss of data.
- Make sure that the battery is charged or the AC adapter is easily accessible. You may be required to turn on the computer for airport security personnel.
- Be prepared to turn off the computer during takeoff and landing.
- Contact your airline for information about using an optional airline adapter to power your computer while traveling by airplane.

## Handling Spills

---

Do not spill anything on your computer. The best way to avoid spills is to avoid eating and drinking around your computer. If you do spill something on your computer, turn off your computer, unplug it immediately, and do the following:

- If you spill liquid on the internal keyboard or any external devices (such as the floppy drive), drain as much of the liquid as possible. Be careful not to let the liquid drip onto the LCD panel. Allow the system to dry for several days before trying to use it.
- If you spill liquid on an external keyboard or keypad, unplug it and drain as much of the liquid as possible. Allow the keyboard to sit at room temperature for a full day before trying to use it.



**Sweet liquids leave a sticky residue that may cause damage despite your efforts to dry.**



- If you spill liquid on the LCD panel, clean it immediately with a soft cloth and denatured alcohol. Do not use water, window cleaner, acetone, aromatic solvent, or dry, rough towel to clean it.



**Some liquids damage the polarized LCD screen. If your screen is damaged, contact your authorized Samsung service center for a replacement.**

## Storing the Computer for Long Periods

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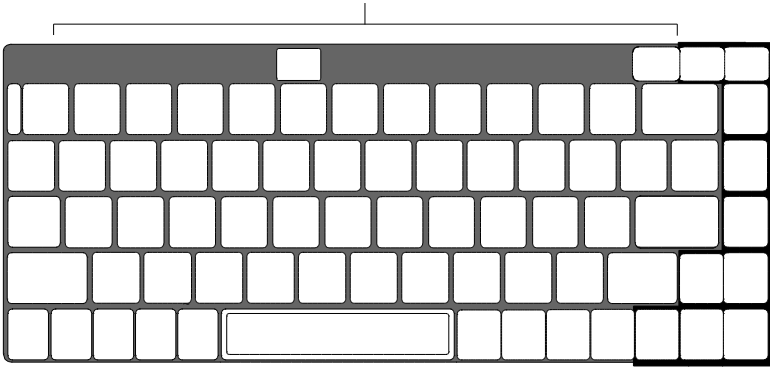
If possible, leave the AC adapter connected to the computer when the computer is not in use. This helps extend the life of the battery and keeps the battery fully charged.

If you will not be using the computer for an extended period of time (a month or more), you should charge the battery until it is completely full. After you have done so, remove the battery from the unit.

# Using the Keyboard

---

Your computer has an 87/88-key keyboard (Figure 7). By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.



*Figure 7. Keyboard*



**Although the layout of the keys on your computer's keyboard is different from that on a desktop computer's keyboard, the keyboard feels like a full-sized keyboard when you use it. The distance between the keys (the pitch) is the same as on a full-size keyboard (19mm). The travel, or space the key goes down when pressed, is (2.5mm).**

The keys on the keyboard can be grouped into the following categories:

- Full-sized typewriter keys are arranged like a standard typewriter keyboard and are used for text entry.

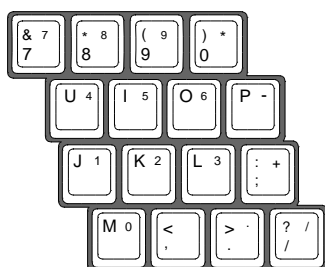
- Function keys, when pressed together with the <Fn> key, enable special functions.
- Cursor control keys move the cursor. They may perform other functions, depending on your software.
- Windows keys open Windows menus and perform other special functions.

To clean the computer keyboard, use slightly damp cotton swabs. Scrub the keys and the surface around the keys. Do not allow liquid to drip into the keyboard or you may damage the keyboard.

## Using the Numeric Keypad

---

Your keyboard includes a numeric keypad, which is a group of keys that you can set to type numbers and mathematical symbols, such as the plus sign (Figure 8). A number or symbol on the right corner of each keypad key shows its numeric function.



*Figure 8. Numeric Keypad*

Press <NumLock> to turn on the embedded numeric keypad. The numeric functions of the keypad are enabled and the NumLock light turns on.

While the numeric functions are enabled, you can temporarily return a key to its normal function by pressing <Fn> and the key. For example to type the letter *m*, press <Fn+m>.

To turn the numeric keypad off, press <NumLock> again. The NumLock light turns off.

# Using Special Function Keys

---

The <Fn> key activates special functions when it is pressed in combination with another key. Table 1 shows the special key combinations.

*Table 1. Description of Special Function Keys*

<b>&lt;Fn&gt;Key Combination</b>	<b>Function</b>
<Fn+F1>	<i>Printscreen:</i> In Windows 98 or Windows NT, takes a picture of the open screen and puts it on the clipboard.
<Fn+F2>	<i>System request:</i> Reserved for use in software programs.
<Fn+F3>	<i>Speed:</i> This key combination is not enabled on SN6000 Series computers
<Fn+F4>	<i>Backlight:</i> Turn the LCD display off. Press any key (except the <Fn> key) to turn the LCD display back on.
<Fn+F5>	<i>CRT/LCD:</i> Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
<Fn+F6>	<i>Gauge:</i> Displays the battery gauge in the upper-right corner of your screen. The gauge closes in a few seconds. (See "Monitoring the Battery Charge" on page 41 for more information on the battery gauge.)
<Fn+F7>	<i>Key Lock:</i> Locks the keyboard and activates password protection. Type the user or supervisor password and press <Enter> to unlock the keyboard. If the supervisor password was entered on boot only the supervisor password will unlock the system. The <Fn+F7> key combination has no effect unless a password is enabled in System Setup. The NumLock, CapsLock, and Scroll Lock lights blink in sequence when the keyboard is locked.
<Fn+F8>	<i>Mute:</i> Turn the audio output on and off.
<Fn+F9>	<i>Volume down:</i> Decreases the audio volume.
<Fn+F10>	<i>Volume up:</i> Increases the audio volume.
<Fn+F11>	<i>Rest:</i> Put the computer into rest or suspend mode. To resume normal operation from rest, press the power button. (See "Power Menu" on page 55 for more information about the rest mode.)
<Fn+F12>	<i>Scroll:</i> In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing <Fn+F12> again turns off the scrolling function.

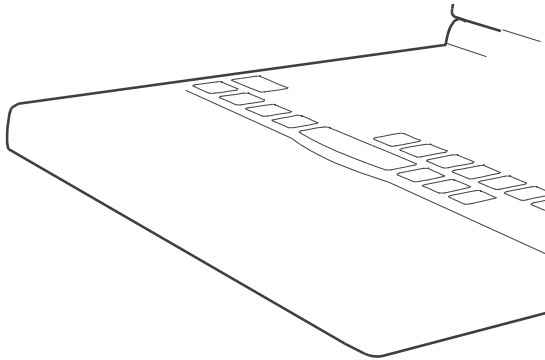
<Fn+Up Arrow>	<i>Contrastup</i> : Increases the LCD contrast. Contrast adjustment is not needed on a TFT LCD.
<Fn+Down Arrow>	<i>Contrastdown</i> : Decreases the LCD contrast. Contrast adjustment is not needed on a TFT LCD.
<Fn+Right Arrow>	<i>Brightnessup</i> : Increases the LCD brightness.
<Fn+Left Arrow>	<i>Brightnessdown</i> : Decreases the LCD brightness.

---

# Using the Touchpad

---

Your computer is equipped with the SmartPoint™ touchpad, which is an integrated-pointing device that is used to perform standard mouse functions (Figure 9). The touchpad is an advanced and reliable pointing device that works with a touch of your finger.



*Figure 9. Touchpad*

To use the touchpad:

- Place your finger on the pad and move your finger in the direction you want the cursor to move. The faster you move your finger, the faster the cursor moves across the screen.
- Roll your finger from side to side to move the cursor short distances.
- Quickly tap your finger on the touchpad to click an item.
- Tap your finger twice to double-click an item.
- Tap and drag your finger on the touchpad to click and drag an item.
- Press on the touchpad gently. The touchpad responds to light pressure.

You can also use the buttons at the bottom of the touchpad in the same way you use standard mouse buttons.

For information on attaching and using another pointing device or keyboard with your computer, see “Connecting Peripheral Devices” on page 24.

# Reading the System Status Lights

---

System status lights show the status of computer functions. The lights appear on the left edge of the computer (Figure 10). Table 2 describes the meaning of the lights.

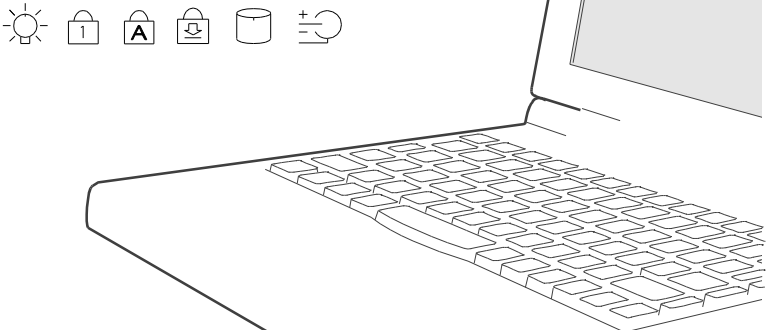


Figure 10. System Status Lights

*Table 2. System Status Lights*

<b>Icon</b>	<b>Function of Light</b>
	<p><i>Powerlight:</i> Light is on when the computer's power is on. The light blinks between green and amber when the battery is low. The light changes to amber when the system is power-on-suspend mode. The power light is off if the system is turned off or in rest mode.</p> <p><i>NumLocklight:</i> Light is on when the embedded numeric keypad is activated. See "Using the Numeric Keypad" on page 16 for a description of the keypad.</p> <p><i>CapsLocklight:</i> Light is on when the caps lock function is activated. When the function is activated, all</p>



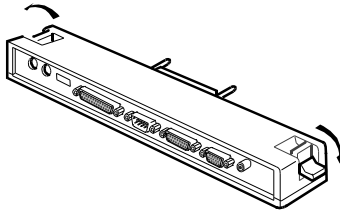
# Connecting the Port Replicator

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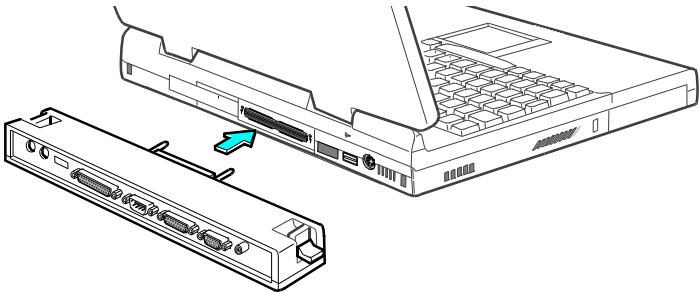


**Turn off your computer before you connect or disconnect the port replicator, failing to do this may seriously damage your computer.**

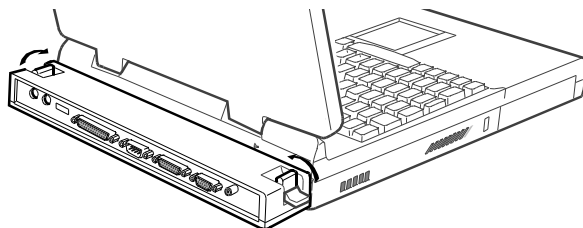
1. Close rear port door and slide the inner door open
2. Move the 2 latches on the Port Replicator into the down position



3. Insert the Port Replicator



4. Move the latches on the Port Replicator into the up position.



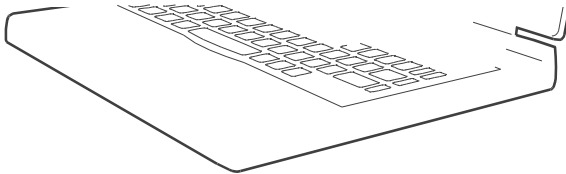
# Connecting Peripheral Devices

---

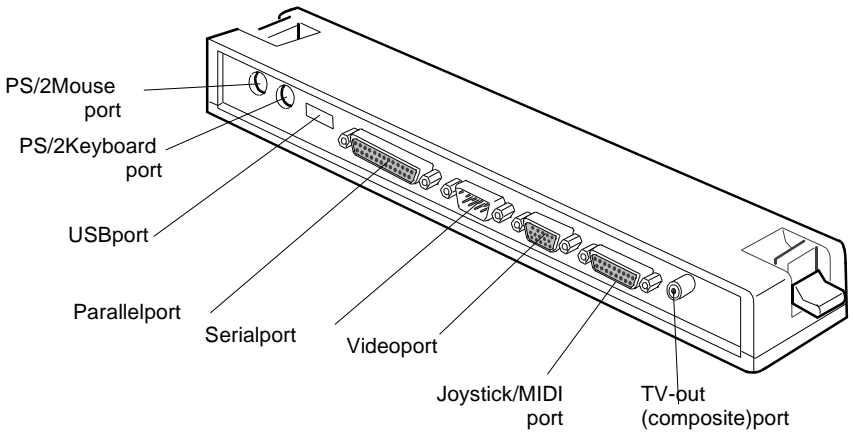
The connectors on your computer enable you to attach peripheral devices to the computer (Figure 11), additional connectors are available if you also use the factory-supplied port replicator (Figure 12).



**Turn off your computer before you connect a peripheral device. Connecting a peripheral device with your computer turned on may seriously damage the device or your computer.**










*Figure 11. System Peripheral Connectors*



*Figure 12. Port Replicator Peripheral Connectors*

Table 3 shows the icons located near each connector and tells you the devices that you can attach to the connectors.

Table 3. Connecting Peripheral Devices

Icon	Connector
	<p><b>Serialport:</b> Plug a serial device, such as a serial printer, into this 9-pin port. If the device has a 25-pin connector, you need a 25-to-9-pin serial adapter.</p>
	<p><b>Docking connector:</b> Connect a docking option to this connector. See "Docking Options" on page 96 for more information.</p>
	<p><b>USB port:</b> Connect USB devices to this port. USB input/output devices include keyboards, pointing devices, and monitors.</p>
	<p><b>PS/2 mouse and keyboard port:</b> Connect a PS/2-compatible mouse or external keyboard or keypad to this port. Make sure your computer is turned off when you attach peripherals to the port. You can use the computer's touchpad and a PS/2 keyboard at the same time. If you attach a PS/2 mouse to the port, the computer's touchpad may be disabled. See PS/2 Mouse Configuration on page 50 for more information.</p>
	<p><b>Audio headphone-out jack:</b> Connect stereo headphones or speakers to this jack. Speakers connected to this jack override the on-board speakers.</p>
	<p><b>Microphone jack:</b> Connect an external microphone to this jack. A microphone connected to this jack overrides the internal microphone.</p>
	<p><b>External module port:</b> Connect one end of the external module cable to this connector and the other end to the external module. See "Connecting External Modules" on page 29 for more information.</p> <p><b>Mouse port:</b> Connect a PS/2-compatible mouse to this port. Make sure your computer is turned off when you attach peripherals to the port. If you attach a PS/2 mouse to the port, the computer's touchpad may be disabled. See PS/2 Mouse Configuration on page 50 for more information.</p>



**Keyboardport:** Connect an external keyboard or keypad to this port. Make sure your computer is turned off when you attach peripheral to the port.



**Parallelport:** Plug a parallel device, such as a parallel printer or network adapter, into this 25-pin port.



**Videoport:** Plug the interface cable of an external monitor into this 15-pin connector and then plug the monitor power cord into a grounded outlet.



**Joystick/MIDIport:** Connect a joystick or other game pointing device to this port. You can also connect a MIDI device to this port.



**TV-out (composite)port:** Plug an RCA or Phonoplug connector from this port into an external monitor to get video only. No audio is transmitted via this port. You cannot enable TV Out display unless the current screen resolution is lower than 1024x768.

---

## Using the TV-out (composite) Port

---

This feature is only available with Windows 98. Using the TV-out (composite) port on the port replicator, a compatible TV or other compatible display device can be connected and an image displayed. To check if and how your TV displays the TV-out (composite) signal see the documentation included with your TV.



**You cannot enable TV Out display unless the current screen resolution is lower than 1024x768. See “Resolution and Color Depth” on page 69 for information on changing your screen resolution.**

To enable TV-out:

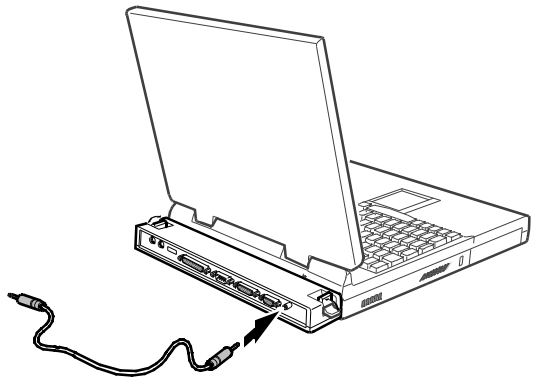
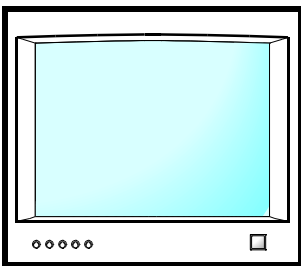
1. Enter System Setup and under the Advanced menu, set *TV Standard* to the appropriate standard for your TV. (see “Using System Setup” for information on setting options.)

2. Reboot your computer.
3. Connect the TV to the TV-Out (composite) port using an appropriate cable, Figure 13 on page 28
4. Click the *Start* button on the Windows 98 taskbar.
5. Select *Settings*.
6. Click *Control Panel*. The Control Panel window appears.
7. Double-click the *Display* icon. The Display Properties window appears.
8. Click the *Settings* tab. The Settings screen appears.
9. Click the *Advanced Properties* button. The Advanced Properties screen appears.
10. Click the *Display* tab. The system will now try to detect a TV connected to the TV-out (composite) port.
11. Put a tick in the box under the TV symbol



**If the TV symbol is greyed out then the system has not detected a TV, check that the TV standard in the BIOS is set correctly and that the TV is connected properly.**

12. Click *OK* and follow the prompts that appear on the screen.



*Figure 13. Attaching a TV to the TV-out (composite) port*

# Connecting External Modules

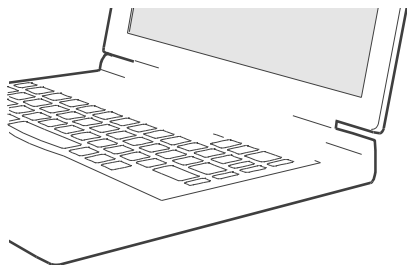
---

SN6000 computers ship from the factory with an external floppy drive module. For information about the optional CD-ROM and DVD-ROM drives, see “Using Options” on page 91. These devices are connected to the computer’s external module port using the external module cable.



**If your operating system is Windows 98 you can use the SmartBay utility to hot-swap the external modules. If you do not use Windows 98, make sure that the computer’s power is off before you remove or install any external modules.**

Only one external module can be used at any one time. Attach one end of the external module cable to the module and the other to the external module port on the computer (Figure 14).



*Figure 14. Attaching the External Modules to the Computer*



The external module cable must be inserted as shown in Figure 14. To insert the cable correctly, make sure that

- The cable connector labeled *System* is connected to the Computer.
- The cable connector labeled *Unit* is connected to the external module.
- Secure the cable by tightening the thumb screws.

Your computer's operating system automatically recognises the device in the Smart Bay and configures your computer accordingly.



**If the cable does not fit easily, do not force it. Make sure you have the correct end of the cable going to the computer and to the external module.**

To remove the cable:

1. Loosen the thumb screws
2. Pull the cable connectors away from the external module and the computer.

## Using the Smart Bay Utility

---

If your computer shipped with Windows 98, you can use the Smart Bay utility to hot-swap your external modules.

To open the Smart Bay utility

1. Click the Start button on the Windows taskbar.
2. Select *Smart Bay Hotswap Utility* .

To remove an external module:

1. Open the *Smart Bay Hotswap Utility* .
2. Select *Remove Device* and click *Ok*.
3. Click *Yes* on the confirmation screen
4. Remove the external module by either disconnecting the cable from the computer or from the external module.

5. Click *Ok*.

To insert an external module:

1. Open the *SmartBayHotswapUtility* .
2. Select *InsertDevice* and click *Ok*.
3. Connect the external module to the computer using the external module cable. Make sure all connectors are correctly attached.
4. Click *Ok* to allow your computer to detect the external module.

If you have difficulty in getting an external module detected, go through the remove procedure and then the insert procedure again.

# Using the Floppy Drive

---

The computer comes with an external 1.44-MB, 3.5-inch, high-density floppy drive, which can read, write to, and format the following disks:

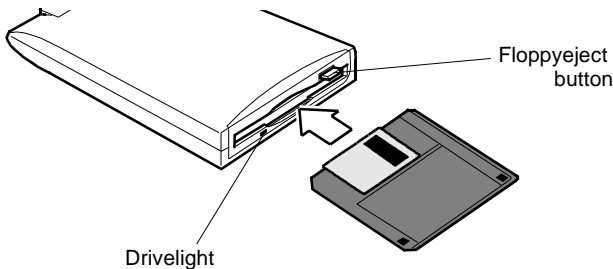
- A high-density, 3.5-inch disk, which stores 1.44 MB of data.
- A double-density, 3.5-inch disk, which stores 720 KB of data.



**The floppy drive in your portable computer is smaller but more power-efficient than a floppy drive in a desktop computer. To get the best performance from your floppy drive, handle the drive carefully when installing or removing it and use high-quality floppy disks.**

The floppy drive connects externally to your computer by cable to a connector on the outside of the computer. For information on installing the floppy drive, see “Connecting External Modules” on page 29 and see “Using the SmartBay Utility” on page 30.

To use a floppy disk, insert it into the floppy drive (Figure 15).



*Figure 15. Inserting a Floppy Disk*

To remove a floppy disk, press the eject button on the floppy drive.

The drive light on the floppy drive is green when the computer writes to or reads from a floppy disk. Do not remove a disk when this light is on.

To protect the data on your floppy disks, follow these guidelines:

- Keep disks away from excessive heat, direct sunlight, and liquids.

- Keep magnets and any device that contains a magnet (like the telephone) away from your disks.



**Magnetic fields can destroy the information on a disk.**

- Do not write directly on a label on your disk; instead, write on a disk label first and attach the label to the disk.
- Make copies of all your important disks.

# Using the CD-ROM Drive

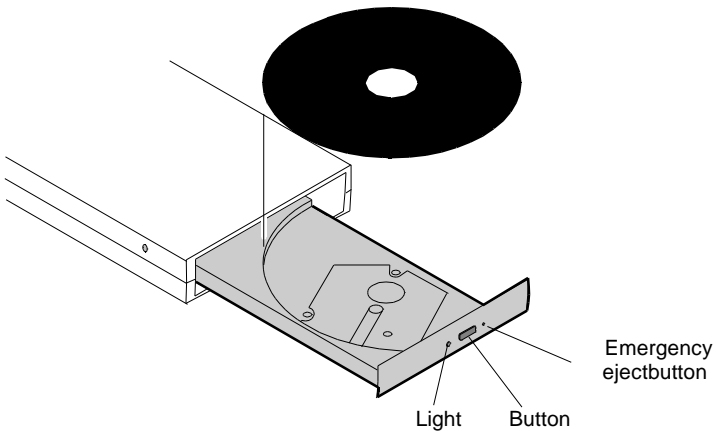
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The external CD-ROM drive module must be purchased separately, see “Using Options” on page 91. The CD-ROM drive connects externally to your computer by cable to a connector on the outside of the computer. For information on installing the CD-ROM drive, see “Connecting External Modules” on page 29 and see “Using the SmartBay Utility” on page 30.

Compact discs are designed so that you can easily insert one into the computer when you need it, and then remove it:

1. Press the button on the CD-ROM drive, and the tray slides out. (Do not lean on the tray; it does not support much weight.)
2. Insert a CD, label side up (or remove a disc, if you have finished using it).
3. Push the tray in gently to close the drive tray (Figure 16).

Align the tray with the drive when the computer is reading from a CD. Do not remove a disc when this light is on.



*Figure 16. Using the CD-ROM Drive*

Install and start a CD-based program as you would a program on a floppy disk. See your operating system documentation for more information on running programs.

The name of the CD-ROM drive is the letter following the letter assigned to your last hard drive. For instance, if you have one hard drive with only one hard drive partition, the hard drive is drive C and the CD-ROM drive is drive D.

If necessary, you can use the emergency eject button to open the CD-ROM drive. To use the emergency eject button, turn the computer's power off and insert a small object, like a bent paperclip, into the hole to press the button.



**Do not place reflective objects in the disc slot because of possible hazardous laser emissions.**

**The laser beam used in this CD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD-ROM drive. Refer servicing to your authorized Samsung service center.**

The on-board audio hardware and software of your computer enable the computer to play audio compact discs. If you wish to do so, you can attach external speakers to the audio-line-out jack.

To play an audio compact disc:

1. Insert a compact disc into your CD-ROM drive:
  - a. Press the button on the CD-ROM drive, and the tray slides out.
  - b. Insert a CD, label side up.
  - c. Push the tray into the drive tray. The CD Player button appears on the taskbar.

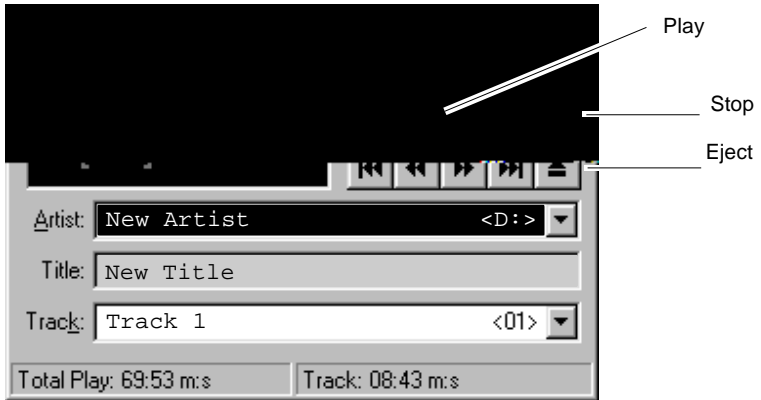
The disc begins to play.

A light on the drive tray is on when the computer plays a CD. Do not remove a disc when this light is on.

2. To adjust the sound, use the volume adjustment dial on the side of the computer or press the following key combinations:
  - <Fn+F8> mutes the volume.
  - <Fn+F9> decreases volume.
  - <Fn+F10> increases volume.

To remove the CD:

1. Click the CD Player button on the Windows taskbar to open the CD Player window (Figure 17).



*Figure 17. CD Player Window*

2. Click the Stop button in the CD Player Window.
3. Click the Eject button on the CD Player window or press the button on your CD-ROM drive. The drive tray opens and you can remove the disc from the CD-ROM drive.

For more information on playing compact discs, see the Help menu in the CD Player window.

# Using the Hard Drive

---

Your computer includes an IDE hard drive. The IDE hard drive can store the data and programs your computer uses.

Although the storage capacity of hard drives varies according to model, any hard drive holds much more than a floppy disk does. Also, the computer reads and works with a hard drive more rapidly than with a floppy disk.

Once information is saved on a hard drive, it remains there until it is overwritten. Samsung hard drive heads park automatically when you turn off your computer.



**The hard drive that comes with your computer has already been formatted. Do not format the hard drive. Doing so destroys all data contained on the drive. If you need to format or erase all data on your hard drive, refer to the manual for your operating system.**

The drive in your computer is divided into partitions. Each partition is 2 GB or less so that the partitions can use a 16-bit file allocation table (FAT-16). The file allocation table enables the partitions to locate files and directories. Your computer recognizes each partition as a separate drive, for example, if a hard drive has two partitions, they could be recognized as drive C and drive D.

Although Windows 98 can work with FAT-16 or FAT-32 (a 32-bit file allocation table), your computer has been supplied with FAT-16 as there are software compatibility issues with FAT-32. Older software that you may have (16-bit software) may require FAT-16 to run. Similarly Windows NT 4.0 can use FAT-16 or NTFS (the Windows NT file system). There are utilities included with Windows 98 and Windows NT 4.0 to convert from FAT-16 to FAT-32 or NTFS, see the documentation included with your operating system for more information.



**It is not possible to convert from FAT-32 or NTFS to FAT-16 without reformatting your hard drive.**



# Using the Battery

---

Your computer uses a smart rechargeable lithium-ion battery pack for power when the AC adapter is not attached to an electrical outlet. The smart battery gives an accurate measurement of the current battery capacity which helps extend operating time by enabling effective power management in operating systems that take advantage of the accurate information supplied by the battery.

## Charging the Battery

---

Your computer's battery starts charging automatically when you connect the AC adapter to the computer. If the computer is off, the battery charges faster than if the computer's power is on.

Approximate charging times for our battery are

- 2.5 hours with the computer off
- 4 hours with the computer on

While the battery is charging, the battery charge light on the computer is amber (see Figure 10 on page 20 for the location of the battery charge light). When the battery is fully charged, the light changes to green.

When you use a new battery pack for the first time or use a battery after a long period of storage, the initial battery life is shorter than normal. Normal battery life resumes after a few discharge-recharge cycles, see Battery Calibration in system setup on page 58 for more information on discharging the battery.



**All batteries eventually wear out and lose the ability to hold a charge. You may need to replace your battery pack after a year of average usage.**

Follow these rules for charging your battery:

- A battery normally discharges power when not used for long periods of time. Be sure to recharge the battery every two months when it is not in use.

- Make it a practice to discharge your battery fully before recharging the battery. This can help extend the life of the battery.
- Do not attempt to charge the battery in temperatures of under 41°F (5 °C) or over 95 °F (35 °C.)

## Safely Using the AC Adapter and Batteries

---

Follow these guidelines to safely use the AC adapter and batteries:

- Turn your equipment off and unplug the AC adapter if you accidentally:
  - Expose the equipment to liquid.
  - Drop, jar, or damage the computer.
- Use only Samsung-approved batteries, AC adapters and auto/airline adapters.
- Do not disassemble the battery, heat it above 122°F (50°C), or burn it. The battery used in this computer may cause a fire or chemical burn if mistreated.
- Your computer's smart rechargeable battery may be considered hazardous waste. If you replace your battery with a new one:
  - Keep the old battery out of the reach of children.
  - Dispose of the old battery promptly.
  - Make sure that you follow all state and local requirements when you dispose of the old battery.

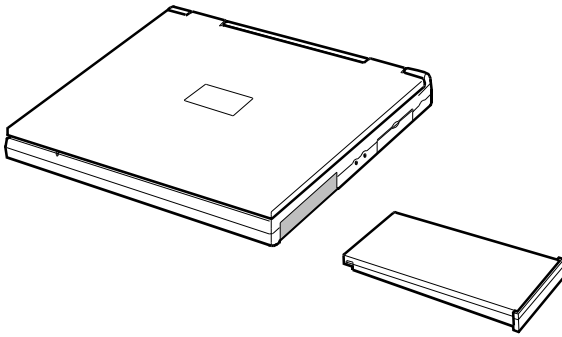
## Removing and Inserting the Battery

---

Your computer comes with the battery pack inserted. To remove the battery pack:

1. Turn the computer's power off.
2. Close the LCD panel and turn the computer over so that the bottom of the unit faces up.





*Figure 19. Inserting the Battery*

## Monitoring the Battery Charge

---

Battery life is affected by factors such as the power-management settings in System Setup, the applications you use, and the brightness of the LCD. Under normal usage, the battery charge lasts approximately 2.5 hours.



**Battery life estimates are subject to variation. The actual life of your battery may be less than the estimates given in the documentation.**

You can monitor the charge of the battery pack installed in your computer through the battery gauge.

## Using the Battery Gauge

You can display the battery gauge while you are in any program. Press <Fn+F6> to display the battery gauge on the LCD (Figure 20).



*Figure 20. Battery Gauge*

The gauge has two sections:

- The top section of the gauge shows a picture of a battery to indicate that the computer is operating from the battery.
- The bottom section of the gauge shows you the amount of battery charge remaining.

While the battery gauge is displayed, all keys are disabled. The battery gauge closes in a few seconds.

## Using Power Profiler to Monitor the Battery

Power Profiler enables you to set power-management options for computers shipped with Windows NT installed. To use Power Profiler to monitor the battery charge, place the cursor on the battery icon in the right corner of the taskbar. Power Profiler shows you the amount of battery charge remaining.

The color of the battery icon also indicates approximate battery charge:

- Green: Charge is adequate to power computer.
- Yellow: Charge is low.
- Red: Charge is very low.

You can determine at what battery charge level Power Profiler shows the low and very low colors. The default setting for the very low level is 20 percent battery charge remaining.

To set battery monitoring options in Power Profiler:

1. Double-click the Power Profiler battery icon to open the software.
2. Click the Battery tab.
3. Set options under *Battery Status and Alarm Settings*.

For more information on Power Profiler, see the Help option in the Power Profiler software.

## Battery Warnings

---

Your computer gives you the following low-battery warnings (Table 4).

*Table 4. Battery Warnings*

Warnings	Condition	Action to Take
The computer beeps 5 times (low-pitched beeps). In Windows 98, a battery-low warning appears on screen.	Battery low: The battery charge is about 10 percent. Approximately 5–10 minutes of battery charge is left.	Save your work and turn off your computer, insert a fully charged battery to continue. Use the AC adapter to power the computer.
The computer beeps 5 times (high-pitched beeps), with a short time between beeps. After a short time, the computer automatically goes into rest mode.	Battery very low: The battery charge is about 3 percent.	Use the AC adapter to power the computer and charge the battery.

If you cannot run your computer from the battery and the battery will not charge when you attach the AC adapter, the problem may be that

- The battery temperature is over 95°F (35°C) or below 41°F (5°C). If you think the battery temperature is too hot or too cold, turn off the computer, remove the battery, and let the battery reach room temperature. Then try charging the battery again.
- The battery is defective. Replace the battery with a new battery.



# Starting System Setup

---

To start System Setup, turn on your computer and then press <F2> when prompted. The System Setup screen appears.

The top of the System Setup screen has a menu bar with these selections listed in Table 5.

*Table 5. System Setup Menus*

<b>Menu</b>	<b>Function</b>
Main	Changes the basic system configuration.
Advanced	Configures advanced features on your computer.
Security	Enables security features, including passwords and backup and virus-check reminders.
Power	Configures power-management features.
Boot	Specifies the order of boot devices.
Exit	Specifies how to exit System Setup.

To open a menu, use the left or right arrow keys to select the menu name.

Table 6 lists the keys you can use to navigate through System Setup.

*Table 6. System Setup Navigation Keys*

<b>Navigation Key</b>	<b>Alternate Key</b>	<b>Function</b>
<F1>	<Alt+H>	Displays the General Help window.
<Esc>	<Alt+F5>	Exits the current menu.
<Left Arrow> and <Right Arrow> keys	Keypad arrow keys	Select a different menu.
<Up Arrow> and <Down Arrow> keys	Keypad arrow keys	Movethe cursor up and down between fields in the current menu.



<Tab>		Movesthecursorforwardthroughthe cellsforahighlightedfield.Ifthefield hasonlyonecell,the<Tab>keymoves thecursordowntotheneftfield.
<Tab+Shift>		Movesthecursorbackwardthroughthe cellsforahighlightedfield.Ifthefield hasonlyonecell,the<Tab+Shift>key combinationmovesthecursoruptothe previousfield.
<Home>	<PgUp>	Movesthecursortothefieldatthetopof thewindow.
<End>	<PgDn>	Movesthecursortothefieldatthe bottomofthewindow.
<F5>	<->	Scrollsbackwardsthroughtheoptions forthehighlightedfield.
<F6>	<+>or <Space>	Scrollsforwardthroughtheoptionsfor thehighlightedfield.
<F9>		SetsalltheparametersinSystemSetup totheirdefaultvalues.
<F10>		ExitsSystemSetupandsavesthe changes.
<Enter>		Executescommandsoropensa submenu.

---

Anarrowssymbolappearingtotheleftofafieldindicatesthatyoucan openasubmenufromthisfield.Asubmenucontainsadditionaloptions forafield.Toopenasubmenu,highlightthefieldandpress<Enter>. Usethesamekeystoentervalueandmovefromfieldtofieldwithin submenusasyouusewithinmenus.

Whenyouhighlightafield,informationaboutthefieldappearsonthe rightsideofthescreen.SystemSetupalsoprovidesageneralhelp screenthatcanbeopenedfromanymenubypressing<F1>or <Alt+H>.TheGeneralHelpscreenliststhenavigationkeyswiththeir correspondingalternatesandfunctions.

Whenascrollbarappearstotherightofahelpwindow,more informationisavailablethancanbedisplayedinthewindow.Usethe <PgUp> and<PgDn> keysorthethe<UpArrow>and<DownArrow> keystoscrollthroughtheentirehelpdocument.Press<Home>to displaythefirstpage,orpress<End>togotothelastpage.Toexitthe helpwindow,press<Enter>or <Esc>.

If your computer will not boot after you have changed settings in System Setup and exited the program, reboot and press <F2> to enter System Setup. Once in System Setup, you can try to change the values that caused your computer boot to fail. If the problem persists, press <F9> to load the default values.

## Main Menu

---

When you open System Setup, the Main menu appears. You can make changes to your computer's basic system configuration from this menu. The fields displayed in this menu are described below.

**SystemTime:** Sets your computer to the time that you specify, usually the current time. Enter the hour, minute, and second in the format *hh:mm:ss*. Use a 24-hour clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers.

**SystemDate:** Sets your computer to the date that you specify, usually the current date. Enter the month, day, and year in the format *mm:dd:yyyy*. Use the tab key to move between the month, day, and year cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers. This field supports year dates of 2000 and beyond.

**LegacyDisketteA:** Specifies a drive type for floppy drive A. Drive A is the floppy drive that is attached using the external module cable to your computer, see "Using the Floppy Drive" on page 32. *DisketteA* options are *Disabled* and *1.44/1.25MB 3 1/2* (default).

**IDEAdapter1** and **IDEAdapter2:** The Main menu contains two IDE adapter fields to configure these drives. *IDEAdapter1* defines the hard drive installed in the computer. *IDEAdapter2* defines the CD-ROM drive.

To configure your hard drive, move the cursor to select the *IDEAdapter1* field in the System Setup Main menu, and then press the <Enter> key. The IDE Adapters submenu appears.

Normally, you can use the *Auto* field in the submenu to automatically set the values for the other fields in the submenu. Manually set the other fields in this submenu only if the drive you have installed in your computer is not recognized by System Setup.

After you make your selections from this submenu, press the <Esc> key to exit back to the Main menu.

You do not need to configure the drive that came with your computer.



**Before attempting to configure a hard drive, make sure you have the configuration information supplied by the manufacturer of the hard drive. Incorrect drive settings can cause your computer to malfunction.**

Each IDE adapter field calls up a submenu. The following fields are found in the submenu:

**Type:** Configures the drive type. Options are *Auto*, *None*, *DVD/CD-ROM* and *User*. All remaining fields in this submenu are then filled with the correct values for the disk type. If you do not have the documentation that came with your hard drive, try to use the *Auto* option as described above.

To configure a drive that is not one of the 39 standard drive types, specify *User*. Manually enter the number of cylinders, heads, and sectors for your drive. Refer to your drive's user documentation or look on the drive to obtain this information.

If no drive is installed or if you are removing a drive and not replacing it, select *None*.

**Cylinders:** Configures the number of cylinders for the hard drive. Refer to your drive's user documentation or look on the drive to obtain this information. Before you can make changes to this field, the *Type* field must be set to *User*.

**Heads:** Configures the number of read/write heads for the hard drive. Refer to your drive's user documentation or look on the drive to determine the correct value to enter for this field. Before you can make changes to this field, the *Type* field must be set to *User*.

**Sectors:** Configures the number of sectors per track for the hard drive. Refer to your drive's user documentation or look on the drive to determine the correct value to enter for this field. Before you can make changes to this field, the *Type* field must be set to *User*.

**Maximum Capacity :** Displays the maximum capacity of your hard drive. This field is for reference only .

**Multi-Sector Transfers:** Sets the number of sectors per block to the highest number supported by the drive. Configuration options are *Disabled*, *2 Sectors*, *4 Sectors*, *8 Sectors*, and *16 Sectors*. The default setting for this field depends on the type of hard drive installed in your computer. Before you can make changes to this field, the *Type* field must be set to *User or DVD/CD-ROM*.

**LBAModeControl:** Enables or disables 28-bit addressing of the hard drive, without regard for cylinders, heads, and sectors. Note that enabling this field may decrease the access speed of the hard drive. The default setting for this field depends on the type of hard drive installed in your computer. Before you can make changes to this field, the *Type* field must be set to *User or DVD/CD-ROM*.

**32BitI/O:** Enables or disables 32-Bit I/O. When *Enabled* (default), your hard drive can work with applications with 32-bit input and output. If the field is *Disabled*, your computer works with 16-bit input and output and has lower performance.

**Transfer Mode :** Selects the method for transferring data between the hard drive and system memory. Refer to your drive's user documentation to specify the correct option for this field. Options are *Standard*, *FastPIO1*, *FastPIO2*, *FastPIO3*, *FastPIO4*, *FPIO3/DMA1* and *FPIO4/DMA2*. Before you can make changes to this field, the *Type* field must be set to *User or DVD/CD-ROM*.

**SMART Monitoring :** SMART (self-monitoring analysis and reporting technology) software monitors the performance of your computer's IDE hard drive. When the SMART Device Monitoring field is disabled, you receive a warning message if the SMART software detects an impending drive failure. This field is for reference only.

**UltraDMA Mode:** Enable the hard drive to use ultraDMA transfer mode to transfer data between the drive and system memory. Options are *Disabled*, *Mode0*, *Mode1* and *Mode2*. Set the *Type* field to *Auto* to select the optimum transfer mode.

**Memory Cache:** Opens a submenu that enables or disables external cache memory. Cache memory improves system performance by keeping frequently used computer instructions in memory with a faster access time than DRAM.

Thesubmenufieldsare:

**MemoryCache** : *Enables* (default)or *disables*yourcomputer's (level2)cachememory.Normally,donotdisablethecache memoryunlessaprogram'sdocumentationspecificiesthatthe computercachememorymustbedisabled.

**Cache ExtendedMemoryArea**: Controlsthecatchingof systemmemoryover1MB.Optionsare *WriteBack* (default), *uncached*, *WriteThrough* and *WriteProtect* .Normally,Write Backistheoptimalsettingbutifyouareexperiencing problemstrychangingthessettings.

**CacheD400-D7FF**: *Enables*or *disables*(default)catchingof shadowedoptionROMsintheD400-D7FFregion.

**CacheD800-DBFF**: *Enables*or *disables*(default)catchingof shadowedoptionROMsintheD800-DBFFregion.

**SystemMemory**: Displaystheamountofconventionalmemory detectedbyyourcomputerduringstartup.Thisfieldisforreference only.

**ExtendedMemory**: Displaystheamountofextendedmemory detectedbyyourcomputerduringstartup.Thisfieldisforreference only.

this field are *SingleMouse* (default) and *DualMouse*. If you set this field to *SingleMouse*, the touchpad mouse is disabled when an external PS/2 mouse is attached. Select *DualMouse* to have both the touchpad mouse and the PS/2 mouse enabled at the same time.

**I/O Device Configuration:** Open the *I/O Device Configuration* submenu if you press <Enter> when this field is highlighted. If you attempt to set two ports to the same settings, the fields will be marked with asterisks.

The submenu contains these fields:

**SerialportA:** Configures serial port A. The options for this field are *Enabled* (default) and *Disabled*. If you set this field to *Enabled*, you can set the *BaseI/O Address* field to *3F8IRQ4* (default), *2F8IRQ3*, *3E8IRQ4*, or *2E8IRQ3*. When the field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

**SerialportB:** Configures the infrared port. The options for this field are *Auto*, *Enabled* (default) and *Disabled*. If you set this field to *Enabled*, you can set the *BaseI/O Address* field, the *Mode* field and the *DMA channel* field. Settings for the *BaseI/O Address* are *3F8IRQ4*, *2F8IRQ3* (default), *3E8IRQ4*, or *2E8IRQ3*. Settings for the mode field are *FIR* (default), *Normal*, *IrDA* and *ASK-IR*. Setting the mode field to *FIR* (fast infrared) enables you to set the *DMA channel* to 3 (default) or 1. Select *Normal* to enable a second physical serial port.

When the *SerialportB* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

**Parallelport:** Configures the parallel port. The options for this field are *Auto*, *Enabled* (default) and *Disabled*. If you set this field to *Enabled*, you can set the *Mode* field and the *BaseI/O Address* field. Settings for the *BaseI/O Address* field are *378IRQ7* (default), *378IRQ5*, *278IRQ7* and *278IRQ5*. Settings for the *Mode* are *Output only*, *Bi-directional*, *EPP* (enhanced parallel port), and *ECP* (default, extended capabilities port). Selecting the *ECP* setting enables you to set the *DMA channel* to 1, 2, or 3.

When the *Parallelport* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device. If *Auto* is selected, the BIOS or the computer's operating system chooses the configuration.

**Floppy disk controller:** Configure the floppy disk controller. The options for this field are *Enabled* (default), *Auto*, and *Disabled*. When the *Floppy disk controller* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller. Selecting *Auto* enables the operating system or the BIOS to configure the port.

**Installed O/S:** Select the operating system installed on your computer. Options are *Win95/Win98APM*, *Win98ACPI/WinNT5.0* and *Other*. Set this field to *Other* if your computer uses an operating system that is not plug and play compliant, such as Windows NT 4.0. With an operating system that is not plug and play compliant, you manually change the settings for the COM1, COM2, and LPT ports. The BIOS will recognize the new settings. Choosing an incorrect setting may cause some operating systems to behave unexpectedly.

**Boot-time Logo Screen** : Enable the Samsung logo screen during POST. The options are *Enabled* (default) and *Disabled*. To view the POST screen during boot, choose *Disabled*.

**Quick Boot Mode** : Enable certain diagnostic tests to be skipped during POST, which decreases the time needed to boot the system. The options are *Enabled* (default) and *Disabled*.

**CPUBIOS Update** : Enable CPU Micro Code updates during POST. The options are *Enabled* (default) and *Disabled*.

**USB device:** Configure the USB controller. The options for this field are *Enabled* and *Disabled* (default). When the *USB device* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller. If you select *Disabled*, you free up an IRQ for use by another device.

**Screen Expansion:** Enable the expansion of the screen during boot. When your computer starts, the screens are in 640x480 resolution during boot and then automatically change to the resolution you have specified in the Windows settings. When this field is disabled, the opening screens are expanded beyond 640x480. The default is *Enabled*.

**TVStandard:** SelectstheTVStandardtobeusedwhenusingtheTV out(composite)port.Optionsare *NTSC*, *PAL*(default), *PAL-M*, *PAL-60*, *NTSC-J*and *SCART-PAL*.

**LocalBusIDEadapter:** EnablestheintegratedIDElocalbus adapters.Optionsare *Both*(default), *Disabled*,*Primary* and *Secondary*.The *Both*optionenablesboththeprimaryIDEadapter(for theharddrive)andthesecondaryIDEadapter(fortheCD-ROMdrive) onthecomputer.

**LargeDiskAccessMode:** Enablesyourcomputer'soperatingsystem toworkwithdriveslargerthan540MB.Choose *DOS*(default)for Microsoftoperatingsystems.Choose *Other*foranyotheroperating systems.

## Security Menu

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Selecting *Security*fromthemenubardisplaystheSecuritymenu.Your computer'sadvancedsecuritysystemallowsyoutosettwodifferent passwordstopreventunauthorizedaccesstosystemresources,data, andSystemSetup.FromtheSecuritymenu,youcanenableabout password,diskaccess,asystembackupreminder,andaviruscheck reminder.

Securityfieldsmarkedwithanasteriskcanonlybechangedifyoustart SystemSetupwithasystemsupervisorpasswordorinopasswordsare ineffect.Youcannotaccessthesefieldswithauserpassword.

**SetUserPassword:** Enablesyoutosetauserpasswordtocontrol accesstothesystematboot.See“Creating a Password”onpage59for instructions onsetting a password.Theuserpasswordallowsrestricted accesstothetheSystemSetupSecuritymenu;theuserhasaccessonlyto changinghisownpasswordandtoenablingordisabling *Password on boot*.Asupervisorpasswordmustbesetbeforeauserpasswordcanbe set

**SetSupervisorPassword:\*** Enablesyoutosetthesupervisor passwordtocontrolaccesstothetheSystemSetuputility.See“Creating a Password”onpage59forinstructions onsetting a password.

**Passwordonboot:** Determineswhetherthecomputerpromptsfora passwordwhenstartingup.Theoptionsare *Enabled*and *Disabled*.A supervisorpasswordmustbesetbeforeyoucanenablethisoption.



**Fixed disk boot sector:**\* Enables you to write-protect the hard drive boot sector to protect against viruses and alterations. Only a user with the supervisor password can access this field. The options for this field are *Normal* (default) and *Write Protect*.

**Diskette access:** \* Enables you to restrict the use of floppy drives. When set to *Supervisor* (default), the use of floppy drives is restricted to a user with the supervisor password. A supervisor password must be enabled before the *Supervisor* option can take effect. When set to *User*, users with either type of password have access to floppy drives. If the field is set to *Supervisor* and a user password is enabled, the user must enter the supervisor password in order to boot from the floppy drive.

**Virus check reminder:**\* Enable the computer to prompt you to scan the computer for viruses. The prompt appears each time you start your computer or reboot until you respond with *Y* (yes). The options for this field are:

- *Daily*: Every day when you start your computer for the first time, the prompt appears.
- *Weekly*: When you start your computer for the first time each week (after Sunday), the prompt appears.
- *Monthly*: When you start your computer for the first time each month, the prompt appears.
- *Disabled*: The prompt never appears. This is the default setting.

For a *Daily*, *Weekly*, or *Monthly* prompt to be accurate, *SystemDate* in the Main menu must be set to the current date.

**System backup reminder:**\* Enable the computer to prompt you to backup your files. The prompt appears each time you start your computer or reboot until you respond with *Y* (yes). The options for this field are:

- *Daily*: Every day when you start your computer for the first time, the prompt appears.
- *Weekly*: When you start your computer for the first time each week (after Sunday), the prompt appears.
- *Monthly*: When you start your computer for the first time each month, the system backup prompt appears.
- *Disabled*: The prompt never appears. This is the default setting.

For a *Daily*, *Weekly*, or *Monthly* prompt to be accurate, *SystemDate* in the Main menu must be set to the current date.

## PowerMenu

---

The Power menu of System Setup allows you to enable and adjust your computer's sophisticated power-saving features. Enabling these features extends the life of the battery.

If your computer shipped with Windows 98 installed, Windows 98 Power Management works with the settings in the Power Management option on the Control Panel.

If the AC adapter is plugged in all power management is disabled.

**PowerSavingMode:** Sets the power management mode. Choosing a mode changes the system power management settings. The options are *MaximumPowerSavings* (default) and *MaximumPerformance*. *MaximumPowerSavings* conserves power by slowing down the microprocessor while *MaximumPerformance* does not slow the microprocessor.

**StandbyTimeout:** Sets the period of computer inactivity (no user input or device activity) that must pass before your computer

is in this mode. This rest mode is also known as suspend to RAM.

When the computer enters save to disk mode, it will not resume normal operation at a specified time no matter how the *ResumeOnTime* field is set.

**RestTimeout:** Sets the amount of time that the computer needs to be in Standby before entering Rest Mode. You can disable this option by selecting *Off*. The default setting is 10 *min* .

**ResumeOnTime:** Enables the computer to resume operation from rest mode at a scheduled time. The computer will resume only if the *Rest Mode* field is set to *PowerOnSuspend*, not *SaveToDisk*. If you set this field to *On*, you must set the *ResumeTime* field as well. The default setting is *Off*.

**ResumeTime:** Specifies the time for your computer to automatically resume from rest mode. Enter two-digit numbers to indicate the hour, minutes, and seconds in the format *hh:mm:ss*. Use a 24-hour clock . Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers. You must set this option if you enable *ResumeOnTime* .

## BootMenu

---

The Boot menu enables you to select a boot device and set boot options.

**Floppycheck :** Enables a check of the floppy drive during the tests performed by the computer at startup. When this field is disabled, a complete POST is performed at startup. The options are *Enabled* and *Disabled* (default).

**Summaryscreen :** Displays the system configuration when the computer starts. The options are *Enabled* and *Disabled* (default).

**BootDevicePriority:** Enables you to select the order in which the computer attempts to boot from different devices. The field has three options: *ATAPI CD-ROM Drive*, *Diskette Drive* and *Hard Drive*.

To choose a device as the first, second, or third boot device:

1. Press <Enter> at the *BootDevicePriority* field

2. Highlight the option with the <UpArrow> or <DownArrow> key.
3. Press the <Space> bar or <-> (hyphen key) until the option moves up or down in the list of options and the number 1, 2, or 3 appears beside the option.
4. Press <Esc> to return to the Boot menu.

The default setting is 1 . *Diskette Drive*, 2. *Hard Drive* and 3. *ATAPI CD-ROM Drive*. With these default settings, your computer first attempts to boot the floppy drive. If there is no floppy disk in the floppy drive, the computer will attempt to boot from the hard drive and then a bootable CD-ROM in the CD-ROM drive.

## Exit Menu

---

Select *Exit* from the menu bar to display the Exit menu.



**Pressing <Esc> does not exit this menu. You must select one of the options from this menu or a menu bar item to exit this menu.**

**Exit Discarding Changes:** Enables you to exit System Setup without saving your changes. When you select this item and press <Enter> a message appears asking you if you want to save changes before exiting. Choose *No* and press <Enter> to exit without saving changes. Choose *Yes* and press <Enter> to save changes and exit.

**Exit Saving Changes:** Enables you to exit System Setup and save your changes. When you select this item and press <Enter>, a message appears asking you if you want to save your changes and exit System Setup. Choose *Yes* and press <Enter> to save your changes and exit. Choose *No* and press <Enter> to remain in System Setup.

**Load Setup Defaults:** Loads the default values for all System Setup parameters. When you select this option and press <Enter>, a message appears asking if you want to load the default configuration. Choose *Yes* and press <Enter> to load default settings and remain in System Setup. Choose *No* and press <Enter> to retain your changes and remain in System Setup.

**Discard Changes:** Enables you to discard the selections you have made and restore the values you previously saved. When you select this option and press <Enter>, a message appears asking if you want to load the previous configuration. Choose *Yes* and press <Enter> to load the previous settings and remain in System Setup. Choose *No* and press <Enter> to retain your changes and remain in System Setup.

**Save Changes:** Saves your selections without exiting System Setup. When you select this option and press <Enter>, a message appears asking if you want to save configuration changes. Choose *Yes* and press <Enter> to save changes and remain in System Setup. Choose *No* and press <Enter> to discard changes and remain in System Setup.

**Battery Calibration:** Enables you to discharge the system battery completely for more accurate battery level detection. This option only works with the smart battery if the AC Adapter is not plugged in.

# Using System Security

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This section describes the security options provided with your computer.

## System Passwords

---

The computer provides two levels of password security: administrative-level (supervisor) and user-level (user). Either password prevents unauthorized access to the computer. The supervisor password enables full access to all System Setup fields. The user password enables full access to only the *Set User Password* and *Password on boot* security fields and read access to all other System Setup fields. (See “Security Menu” on page 53 for a complete list of System Setup security fields.)

If multiple users have access to the computer (such as in a network environment), a supervisor password can prevent unauthorized access to certain security options.

Choose the type of password security that is appropriate for your work. If you want to set a user password, you must set a supervisor password first.

## Creating a Password

---

To create a password:

1. At startup, press <F2> to open System Setup.
2. Use the <Right Arrow> key to select the Security menu.
3. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password*.
4. Press <Enter>. The Set Password dialog box appears.
5. Type a password of up to seven characters. You can enter letters or numbers, but you cannot use the function keys, such as

<Shift>. Your computer does not distinguish between capitalized and lowercase letters in your password. As you type the password, the cursor moves but your password does not appear on the screen.

6. Press <Enter> after you have typed your password. The computer prompts you to reenter your password for verification.
7. Type your password again and press <Enter>. A message appear telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
8. Press <Esc> to go to the Exit menu.
9. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

## Deleting a Password

---

To delete the password:

1. At startup, press <F2> to open System Setup.
2. Type your password when prompted and press <Enter>.
3. Use the <Right Arrow> key to select the Security menu.
4. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password*.
5. Press <Enter>. The computer prompts you to enter the current password.
6. Press <Enter>. The computer prompts you to enter a password. Do not type anything.
7. Press <Enter>. The computer prompts you to re-enter the password. Do not type anything.
8. Press <Enter>. A message appear telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
9. Press <Esc> to go to the Exit menu.

10. Select *ExitSavingChanges* ,press<Enter>,andpress<Enter> again to restart the computer.

## Requiring a Boot Password

---

After you create a supervisor or user password, you can enable the computer to prompt for a password each time it starts.

To enable the prompt, select the option *Enabled* in the *Password on boot* field in System Setup. For more information about the *Password on boot* field, see “Security Menu” on page 53.

## Locking the Hard Drive Boot Sector

---

If you have an supervisor password, you can lock the hard drive boot sector to protect against viruses or alterations.

To lock the hard drive boot sector, select the option *Writeprotect* in the *Fixed disk boot sector* field in System Setup. For more information about the *Fixed disk boot sector* field, see “Security Menu” on page 53.

## Locking the Floppy Drive

---

If you have an supervisor password, you can lock the floppy drives so that a user with only a user password cannot load personal software, which may introduce a virus into the computer.

To enable the floppy lock, select the option *Supervisor* in the *Lock Floppy* field in System Setup. For more information about the *Lock Floppy* field, see “Security Menu” on page 53.

## Locking the Keyboard

---

The keyboard lock enables you to protect your system when you walk away from it for a time. To use the keyboard lock, you must first enable



a password through System Setup. (See "Creating a Password" on page 59 for instructions. To lock your keyboard, press <Fn+F7>. To unlock your keyboard, type your password and press <Enter>.

# Using Power Management Options

---

Your computer includes power-management options that can help the battery charge last longer and extend the life of the battery, LCD panel, and other components. Power-management options slow down or shut off system components when the components are not being used.

Power management slows down system performance. Your computer runs fastest with the AC adapter attached, when no power management is in effect. If you disconnect the AC adapter the LCD brightness is reduced to save power. See page 18 for information on increasing the LCD brightness.

If your computer shipped with Windows 98 installed, Windows 98 Power Management works with the settings in the Power Management option on the Control Panel. If your computer uses DOS or Windows 95, Power Management works with the settings in System Setup.

If your computer shipped from the factory with Windows NT installed, Power Profiler power management software was included.

## Maximum Power Saving Mode

---

In maximum power saving mode, the microprocessor runs at slow speed to conserve power. To enable this mode, set the *Power Saving Mode* field in System Setup to *maximum power saving mode*.

## Standby Mode

---

The *Standby Timeout* field in System Setup enables you to specify the time period that the computer can remain idle (no user input or disk activity) before the computer enters standby mode. You can disable this option by selecting *Off*, or you can specify a *Standby Timeout* delay time off from 1 to 16 minutes.

In standby mode, the system and video memory and the video controllers slow down. The LCD backlight, hard drive, floppy drive, PC

Card controller, and some other devices turn off to save energy. DPMS (a form of monitor power management) to an external monitor is invoked.

To resume from standby, touch the touchpad. Do not press any key on your keyboard.



**If you press a key to resume from standby, your computer will recognize the function of the key you pressed and perform that function. For example, if you press <N> and a document is open, an “n” is typed into your document.**

If you enable both standby and rest modes, your computer enters standby when the delay time you chose for standby has elapsed, and then enters rest mode when the delay time you chose for rest mode has elapsed since the computer entered standby.

## Rest Mode

---

The *RestTimeout* field in System Setup enables you to specify the time period after the entering standby before the computer enters rest mode. You can disable this option by selecting *Off*, or you can specify a *Rest Timeout* delay time of 5 to 60 minutes.

The *RestMode* field in System Setup defines what type of rest mode your computer enters, see "Rest Mode" on page 55 for more information.

You can press <Fn+F11> to manually place your computer into rest mode.



**When you use the <Fn+F11> key combination, your computer may postpone entering rest mode during a critical operation, such as reading from or writing to the hard drive.**

To resume to full-power mode, press the power button.

Once all devices return to full-power mode, all active software applications and system states are restored to exactly how they were before your computer entered rest mode.

When your computer enters or resumes from save to disk mode, screens appear indicating system status. These status screens do not appear when the computer enters or resumes from power on suspend.

## Rest Mode Precautions

---

Observe the following precautions when using rest mode:

- Save all open files before you press <Fn+F11> to manually place your computer into rest mode.
- Do not try to resume to full-power mode using battery power if the battery charge is low. If the battery charge is too low, the system may not be able to resume fully. Plug in the AC adapter if your computer cannot resume normal operation because of a low battery charge.



**When your computer is in power on suspend or save to disk mode, do not connect or remove any devices (including PC Cards or external modules) because you may damage the computer or resume to full power may fail. If a floppy disk is in the floppy drive, do not remove it or switch it with another disk.**

**However, you can plug in the AC adapter if the resume to full power fails because of a low battery charge.**

**When the computer is in save to disk mode, you can remove and replace the battery.**

## Using Power Profiler

---

Power Profiler enables you to set power-management options for computers shipped with Windows NT installed. To open the Power Profiler window, double-click the battery icon on the right corner of the Windows taskbar. If you click the icon with the right mouse button, a menu appears with an option to put the computer in rest (rest mode).

Click the **Standard** tab in Power Profiler to set timeouts for the LCD and the hard drive. You can also set power management to be enabled *Always*, *Battery Only*, or *Never*. The **Advanced** screen in Power Profiler enables resume from rest options, and the **Battery** screen enables options to conserve battery life.

Keep the following in mind when using Power Profiler:

- If you disable power management in Power Profiler, this setting overrides any power-management settings in System Setup.
- If you enable LCD and hard drive timeouts in Power Profiler and the standby timeout in System Setup, the LCD and hard drive turn off when the shortest timeout period in either program passes.
- If you disable the *Resume on Time* field in System Setup, the same field in Power Profiler is also automatically disabled. An easy way to work with these two fields is to set the resume time to 0 in System Setup and set the actual resume time that you desire in Power Profiler.



**Power Profiler maintains the accuracy of the system clock when the computer resumes from rest mode. If Power Profiler is closed or removed from your hard drive, your system clock may not be accurate when your computer resumes from rest mode.**

For more information on Power Profiler, see the **Help** option in the Power Profiler software.

# Creating a SavetoDisk Partition

---

The hard drive shipped in your computer has a saveto disk partition in which data from system and video memory is stored during saveto disk mode. The partition is the maximum size needed for your computer and supports system memory of 160MB.

If you need to repartition your hard disk, you can create a saveto disk partition using the Phoenix PHDISK utility, provided with your computer.



**If you do not intend to use saveto disk mode, you do not need to create a saveto disk partition.**

To create the saveto disk partition:



**To create a saveto disk partition, you need a DOS bootable disk that contains PHDISK, FDISK and the Format command.**

1. Create a Phoenix PHDISK utility disk from the Samsung Restore CD-ROM. See “Using the Samsung Restore CD-ROM” on page 88 for more information.
2. Shutdown your computer.
3. Connect the floppy drive to the computer. (See “Connecting External Modules” on page 29 and see “Using the Floppy Drive” on page 32 for instructions.) Switch on your computer.
4. Enter System Setup and under the Boot menu, set *Diskette Drive* as the first boot device. (see “Using System Setup” for information on setting options.)
5. Insert the bootable disk into the floppy drive and start your computer.
6. After your system boots, remove the startup disk from the floppy drive and insert the PHDISK disk.
7. At the A: prompt, type:

```
phdisk /c 167936 /p
```

and then press <Enter>.

PHDISK automatically creates a save to disk partition of the maximum size for your computer.

When the save to disk partition has been created, the following message appears:

```
Save to disk partition created  
successfully
```



**If you do not intend to use the save to disk mode, you can delete the save to disk partition on a Samsung hard drive using PHDISK/delete. Then you can repartition and reformat the save to disk partition for some other application. Backup your hard drive before deleting the partition if you feel unsure of how to do this.**

# Changing the Video Configuration

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Your computer includes an TFT LCD or active-matrix display. The capabilities of the screen plus the video drivers installed on the computer determine the quality of the image your LCD can display.

The following sections describe the display capabilities of your computer.

## Resolution and Color Depth

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The resolution of the LCD is the sharpness of the image it can display. Resolution is measured by the number of pixels (individual dots) displayed on the entire screen. In general, the more pixels the LCD can display, the better the image.

Your LCD screen is either VGA or XGA:

- The maximum display for the VGA LCD screen is 800x600, about 480,000 pixels.
- The maximum display for the XGA LCD screen is 1024x768, about 800,000 pixels.

The number of colors the LCD can display is measured by how many bits the LCD uses to represent each pixel:

- 8-bit color can support 256 different colors.
- 16-bit color can support 64K (65,536) colors.
- 24-bit color can support 16M (16.8 million) colors.
- 32-bit color can support 16M (16.8 million) colors.

24-bit color uses the RGB color model.

32-bit color uses the CMYK color model which gives better printed color matching.

Table 7 lists the basic video mode capabilities and maximum colors supported by your computer.



Table 7. Video Driver Capabilities

Software Drivers	Resolution Supported	Number of Colors
<b>Windows 98</b>	320x200, 320x240, 512x384, 640x350, 640x400, 640x480, 720x480, 720x576, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	320x200, 320x240, 512x384, 640x350, 640x400, 640x480, 720x480, 720x576, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	320x200, 320x240, 512x384, 640x350, 640x400, 640x480, 720x480, 720x576, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024	16.8million
	320x200, 320x240, 512x384, 640x350, 640x400, 640x480, 720x480, 720x576, 800x600, 864x480, 1024x600, 1024x768, 1152x864	16.8million
<b>Windows NT®4.0</b>	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	640x480, 800x600, 1024x768, 1152x864, 1280x1024	16.8million
	640x480, 800x600, 1024x768, 1152x864	16.8million

All these video modes can be displayed on an external monitor. However, if you disconnect an external monitor that was attached to your computer and then start the computer, the LCD may revert to a different resolution than the one you chose for the external monitor.

## Configuring Display Features

The following sections describe how to configure the display settings on your computer.

## Selecting a Monitor Type

When you attach an external monitor to your computer, Windows 98 automatically selects display settings for it (this feature is not available in Windows NT). If you wish, you can adjust the display settings by selecting a monitor type:

1. Click the *Start* button on the Windows 98 taskbar.
2. Select *Settings*.
3. Click *Control Panel*. The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.
6. Click the *Advanced Properties* button. The Advanced Properties screen appears.
7. Click the *Monitor* tab.
8. Click the *Change* button. The *Update Device Driver Wizard* screen appears.
9. Click the *Next* button.
10. Select the *Display a list of all the drivers in a specific location* radio button and click the *Next* button.
11. Select the *Show all hardware* radio button.
12. Select a manufacturer and model setting that matches your external monitor. Your computer has an intelligent video chip set that automatically matches your LCD panel resolution and frequency when an external monitor is not present.
13. Click the *Next* button.
14. The *Update Device Driver Wizard* screen appears showing the driver location of the device you have selected. Click the *Next* button.
15. Follow any prompts that appear on the screen.

## Changing Color Depth and Resolution

To change the color depth and resolution of your LCD or external monitor:

1. Click the *Start* button on the Windows taskbar.
2. Select *Settings*.
3. Click *Control Panel*. The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.
6. To change the color depth, click the arrow next to *Color palette* and select the color depth you want.
7. To change the resolution, click and drag the knob under the *Screen area* until you select the resolution you want.
8. Click the OK button.
9. Follow the prompts that appear on the screen.

## Changing the Video Driver

---

It is possible that you may want to update your video driver or that your installed video driver has become corrupt so that the display is unusable.

### In Windows 98:

1. Click on the *Start Button*. The Start Menu appears.
2. Select *Settings* and click on *Control Panel*, double click on *Display*. The Display Properties window appears.
3. Click the *Advanced* button. The properties screen for your currently installed video driver appears.
4. Select the *Adapter* menu.
5. Click the *Change* button. The Update Device Driver Wizard window appears.

6. Click the *Next* button.
7. Select *Display a list of all the drivers in a specific location, so you can select the driver you want*. Click the *Next* button.
8. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the original factory driver insert the Samsung Restore CD-ROM into the CD-ROM drive. Click the *Browse* button and locate the driver you want to install. Click the *OK* button.
9. Select the new driver in the *Select Device* screen and click the *Ok* button.
10. Click the *Next* button to install the new driver and follow any directions on the screen to finish setting the display properties.

## In Windows NT 4.0:

1. As the computer starts, select *Windows NT Workstation Version 4.00 [VGA mode]* as the operating system and press <Enter>.
2. Log on to the computer as supervisor. The *Invalid Display Settings* window appears.
3. Click the *OK* button. The *Display Properties* window appears.



### If the *Change Display* window appears, go to step 6.

4. Select the *Settings* menu.
5. Click the *Display Type* button. The *Display Type* window appears.
6. Click the *Change* button. The *Change Display* window appears.
7. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the original factory driver insert the Samsung Restore CD-ROM into the CD-ROM drive. Click the *Browse* button and locate the driver you want to install. Click the *OK* button.

A line similar to the following line appears under the *Display* option: *ATI Technologies Inc. 3DRage LTP Pro*.

8. Click *OK*. The *Third-Party Driver* window appears.

9. Click **Yes**. The driver is copied. A window appears telling you the driver has been successfully copied.
10. Click **OK**. Remove the disk from the floppy drive. Close the open windows on the screen.
11. Click **Yes** when prompted to restart the computer. As the computer restarts, select *Windows NT Workstation Version 4.00* as the operating system and press <Enter>.
12. Log on as supervisor. The Invalid Display Settings window appears.
13. Click the **OK** button. Click the **Test** button at the Display Properties window and follow any directions on the screen to finish setting the display properties.

# Working with PCCards

---

By installing PCCards, you can add functions to your portable computers similar to those found on add-in boards for desktop computers. Available PCCards include:

- Input/output, such as a modem, network, pager, video capture, and SCSI cards.
- Storage, such as hard drive cards.
- Combocards, such as a combination modem and network card.

Your computer includes the following PCCard support:

- Two PC-Card slots: You can install Type I, II, or III cards in the slots. Type III cards are thicker than Types I and II. If you install a Type III card in the bottom slot, you cannot install a card in the top slot.
- CardBus hardware and software: CardBus enables the computer to use 32-bit PCCards. Windows 98 supports 32-bit and 16-bit PCCards. The SystemSoft<sup>®</sup> Card Wizard<sup>™</sup> for Windows NT program, provided with systems that ship from the factory with Windows NT installed, also supports both 32-bit and 16-bit cards.
- Zoomed video: Both PCCard slots and the video chip on your computer support zoomed video. When you install a zoom video PCCard in either slot, data can be transferred directly from the PCCard to video and audio systems without going through the microprocessor. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoom video.



**To use the CardBus and zoomed video technology, install the CardBus and Zoomed Video drivers provided with your PCCard. If no drivers were supplied with your card, contact the PCCard manufacturer. ATA and modem PCCards do not require extra drivers.**

The following section tells you how to work with PCCards.

# Maintaining PCCards

---

To maintain your PCCards, follow these guidelines:

- Keep cards away from excessive heat, direct sunlight, and liquids.
- Do not drop, bend, flex, or crush cards when handling.
- Keep dust, magnets, and static electricity away from PCCards.
- When a card is not in use, carry it in its protective carrying case.
- Some PCCards include cables that extend from the back of the cards. Be careful not to bend or put excessive strain on these cables.

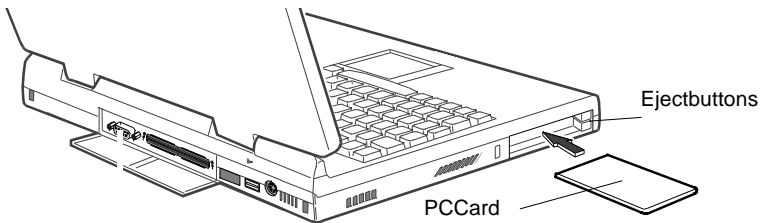
# Using PCCards

---

You can install PCCards while the computer is on.

To insert a PCCard into a slot:

1. Open the slot door.
2. Align the card with the slot and insert the card into the slot until it locks in place (Figure 21).



*Figure 21. Inserting a PCCard*

To remove a PCCard from a slot:

1. Open the slot door.
2. Press the eject button once and it springs out.

3. Press the eject button again to eject the card, see Figure 22 on page 77

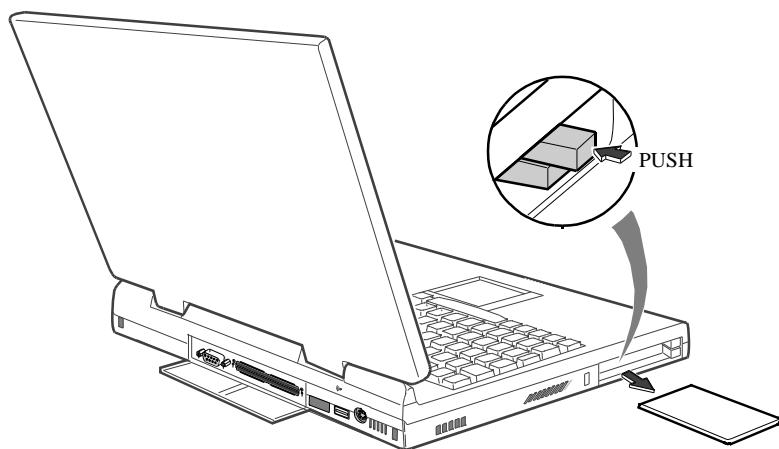


Figure 22. Removing a PCCard

## Windows 98

Windows 98 automatically assigns computer resources (such as communication ports and memory addresses) to a PCCard installed in your computer. For further information on configuring a PCCard in Windows 98, see the index entry *PCCards* in the Windows Help. Windows 98 also handles power management for PCCards.

To remove a PCCard from your computer:



**Use the following procedure to remove PCCards, or you may lose data that is being stored to a card.**

1. Click the PCCard icon on the taskbar.
2. Click *Stop* for the card you want to remove. A message appears telling you it is OK to remove the card.
3. Push the card eject button on the side of the PCCard slot.
4. Pull the card out of the PCCard slot.



# Windows NT 4.0

SystemSoft Card Wizard is shipped with notebook computers that use Windows NT as the operating system. When you install a PCCard, Card Wizard attempts to configure it automatically. If Card Wizard successfully assigns system resources to your card, the computer beeps twice.

If Card Wizard cannot automatically configure your PCCard, the computer beeps once and a message appears telling you that the card has not been configured. Click the Wizard button on the Card Wizard window. Card Wizard then analyzes why the card was not configured and fixes the problem or gives you information to help fix the problem.

Card Wizard works with the Power Profiler program to manage PC Cards when the computer enters or resumes from rest mode. Card Wizard gives you instructions to prevent loss of data before the computer enters rest mode or may stop the computer from entering rest mode. ATA and modem cards can enter rest mode.

Follow these guidelines when using PCCards with Card Wizard:

- LAN (local-area network) cards can be inserted while the computer is on but should be removed only when the system is turned off.
- SCSI cards should be inserted at startup to enable Windows NT to find the device attached to the SCSI card. SCSI cards can be removed when the computer is turned off. If you restart your computer without the SCSI card installed, a message may appear telling you that a service did not start. You can ignore this message.
- Modem and ATA cards can be inserted and removed while the computer is on.



**Before you remove a modem or ATA card from your computer, stop the card through the Card Wizard program or you may lose data.**

To stop and remove a PCCard from your computer:

1. In the SystemSoft Card Wizard screen, click with the right mouse button on the name of the card you want to remove.
2. Click Stop in the Actions menu. A red stop sign appears on the main screen when the card is stopped.

3. ClickOK.
4. PushthecardejectbuttononthesideofthePCCardslot.
5. Pullthecardoutoftheslotcompartment.

FormoreinformationonusingtheCardWizardprogram,seetheCardWizardHelp.

# Updating the System BIOS

---

Your computer uses flash BIOS, which enables you to update the BIOS easily from a floppy disk. If Samsung releases a BIOS update for your computer, copy the disk image to your hard drive from

- The Samsung Website:  
<http://www.samsungpc.com/>

## Performing the BIOS Update

---

Before performing the BIOS update, please note the following rules:

- Do not interrupt the power while updating the BIOS. Interrupting the power may create a fatal error, causing your computer to become inoperable once it has been turned off. If the power is interrupted, turn off your computer and call your authorized Samsung Service Center.
- If your computer is connected to a docking device, disconnect it.
- Do not attempt a BIOS update unless the AC adapter is connected.
- Under the Boot menu in System Setup, set *Diskette Drive* as the first boot device. (See “Boot Menu” on page 56 for information on setting the option.)
- Write down your System Setup settings before you perform a BIOS update. (See “Recording the Computer Hardware Configuration” on page 108.)

To perform the BIOS update:

1. Attach the AC adapter to your computer, plug the adapter into an electrical outlet, and turn on the computer.
2. Copy the BIOS disk image from the BBS or the Samsung Web site onto your computer's hard drive.
3. Insert a formatted floppy disk in the floppy drive.
4. Click the Start button on the Windows taskbar and click *Run*.

5. Type the path to the extract utility. The utility is in the BIOS update files you copied to the hard drive.
6. Click the OK button.
7. Follow the instructions on the screen to make your BIOS update disk.
8. Leave the disk in the computer and restart the computer.
9. Follow the instructions on the screen to complete the BIOS update.
10. After the BIOS update is completed, enter System Setup and set the following fields:
  - Check the *SystemTime* and *SystemDate* fields to make sure they display the current time and date.
  - Set the *InstalledO/S*. Choose the correct setting for your operating system. If you use Windows NT 4.0 select *Other* as it does not support plug and play technology.
  - Set *Infraredport* (in the *I/O Device Configuration* submenu). Setting the port to *Disabled* disables the infrared link and frees an IRQ for another device. If you purchase infrared software, you can use the infrared link with Windows NT.
  - Set *USBDevice* to *Disabled*. Setting the port to *Disabled* frees an IRQ for another device. USB devices are not supported by Windows NT 4.0.

restore other fields to the settings noted on your configuration listing if you wish.

# Troubleshooting the BIOS Update

---

If the flash BIOS update was not successful, make sure that

- You have the right update BIOS for your machine.
- You have completely inserted the disk into the floppy drive.
- The BIOS update disk has not been damaged or corrupted.
- The AC adapter is connected.

Then try the BIOS update again. If the problem continues, contact your authorized Samsung reseller.

# About Drivers and System Resources

---

This section gives you basic information about drivers and system IRQs.

## Drivers

---

A driver is a program that enables the operating system to work with a hardware device. Your computer includes drivers for the audio, video, touchpad, keyboard, CD-ROM drive, hard drive, floppy drive, and PC Card controller. When you add a device to your computer, such as a printer, you must install a driver for that device.

Different drivers are used by different operating systems. If you need drivers for an operating system other than Windows 98 or Windows NT, check the Drivers directory in your restore CD-ROM; drivers for some other operating systems are included there.

## IRQs

---

Most of the devices in your computer or connected to your computer need their own IRQ. The IRQ is a hardware line that a device can use to send signal to the microprocessor. When the device needs the microprocessor's service, the device sends an interrupt request signal to the microprocessor.

The number of IRQs available for any computer is limited by industry standards. Because it ships with numerous features, the SN6000 Series computer uses most of the available IRQs. If you add another device to your computer, you may need to disable an existing device to free up an IRQ for the new device. IRQ resources are of particular concern when the computer is attached to a docking device.

The IRQs that are used by default on your computer are listed in Table 8.

*Table 8. Ascentia SN Series IRQs*

<b>IRQ</b>	<b>Component(Windows98)</b>	<b>Component(WindowsNT)</b>
<b>0</b>	Systemtimer	Systemtimer
<b>1</b>	Keyboard	Keyboard
<b>2</b>	InternalController	InternalController
<b>3</b>	InfraredPort(COM2)	(available)
<b>4</b>	SerialPort(COM1)	SerialPort(COM1)
<b>5</b>	Sound,USB	Sound,USB
<b>6</b>	Floppycontroller	Floppycontroller
<b>7</b>	ECPPrinterPort(LPT1)	ECPPrinterPort(LPT1)
<b>8</b>	SystemCMOS/RealTimeClock	SystemCMOS/RealTimeClock
<b>9</b>		

In Windows 98, you can configure a device so that the device is disabled when you connect your computer to a docking station but enabled when the computer is not connected to the docking station. With this configuration, an IRQ is available for a peripheral device that you can connect to the docking station. See your docking station manual for more information.

## **Enabling the Infrared Port**

---

If your computer's operating system is Windows 98, you can enable and use the infrared port. If your computer's operating system is Windows NT 4.0, you will need to purchase additional software to use the infrared port.

If you are unable to transfer files with the infrared port, check the following:

- Make sure the *SerialportB* field in System Setup is set to *2F8, IRQ3*. The field is in the *Advanced Menu* under *I/O Device Configuration*.
- The receiving device must be positioned properly. There must be no more than three feet (or one meter) of distance between the computer's infrared port and the receiving infrared device.
- The sending and receiving devices need to be on the same level vertically. Place them on the same table if possible.
- Make sure the infrared ports on the sending and receiving devices face each other, with no more than a 30-degree angle between the two infrared ports.
- Make sure that nothing is obstructing the file transfer path between the computer's infrared port and the receiving infrared device.

If you still cannot transfer a file, see the documentation for the infrared software.

## Service Pack 3 for Windows NT 4.0

---

Microsoft® Service Pack 3 (SP3) is included with computers shipped from the factory with Windows NT installed. Anytime you change or add components to your Windows NT system, you need to reinstall SP3.

The version of SP3 on your computer's hard drive includes the correct video driver for your system. If possible, always install this version on your computer.

To install SP3:

1. Run the executable file. On your computer's hard drive this file is located at *C:\SP3\I386\update*.
2. Follow the instructions on the screen with these exceptions:
  - a. When you are prompted to overwrite the *uninstall* directory, click the *Yes* button.



- b. When a prompt identifies your `pcmcia.sys` file as an OEM-installed file and asks you to overwrite the version of the file on your system with the service pack version, click the **No** button.



**If you install any future service packs on your computer, make sure that, when you are prompted, you do not overwrite the `pcmcia.sys` file, or you may be unable to use your computer.**

If you install SP3 from any source other than your computer's hard drive, the video driver that was installed on your computer at the factory is overwritten. After you install the service pack, you must reinstall the video driver the first time you restart your computer, see "Changing the Video Driver" on page 72 for more information.

# Troubleshooting

---

If you ever had difficulty running your computer, follow these steps:

1. Consult the following sections for advice on how to handle system problems.
2. If you have an internet connection, visit the Samsung Website:  
<http://www.samsungpc.com>  
Updates on your system and other Samsung products are periodically added to the Website.
3. If steps 1 and 2 do not help you to resolve the problem, contact your Samsung reseller for assistance or call the Samsung Product Support Hot-Line, see your warranty card for contact details.

# Using the Samsung Restore CD-ROM

---

All SN6000 Series computers that ship from the factory include one Microsoft Windows 98 or Windows NT 4.0 CD-ROM, one restore CD-ROM and one Boot Floppy diskette. The Samsung Restore CD-ROM contains a copy of the applications and drivers needed for computer's operating system.

In the unlikely event that programs on the computer hard drive become corrupted or are erased, you can use the Microsoft Operating System CD-ROM and the restore CD-ROM to reinstall them. To restore software, follow the directions included with the restore CD-ROM.

To use the restore CD-ROM, insert the CD-ROM into the CD-ROM drive while your Microsoft operating system is running, the CD-ROM will start automatically, follow any on-screen prompts.

## Operating Problems

---

This section tells you what to do if you have problems running your computer. If any problem persists after you take corrective action, contact your reseller for assistance.

### **The computer does nothing when you turn it on.**

Has the battery run down? Connect the AC adapter or auto/airline adapter to get power and recharge the battery. Try turning on the computer again.

### **The computer is not behaving as expected.**

Operating your computer at high speed with the cache enabled may cause system instability and incompatibility with some operating systems. If your computer is not behaving as expected and no error messages appear, disable the *Memory Cache* setting in the *Memory Cache* field of System Setup.

### **Nothing appears on the LCD panel when you turn on the computer.**

Adjust the brightness on the LCD. Are you using an external monitor? If so, press <Fn+F5> to return to the LCD panel.

**Nothing appears on the external monitor when you switch the display to it.**

Is the monitor properly connected to the computer? Is the monitor's power cord connected to an AC wall outlet? Check the brightness and contrast controls on the monitor. Does the program appear on the LCD panel instead of the external monitor? If so, press <Fn+F5> to switch to the monitor. Try turning the monitor off and on again.

**The external monitor displays flashes or waves.**

Check the cables between the monitor and the computer. Are they properly installed?

**Some of the letter keys type numbers instead of the indicated letters.**

Is the NumLock light on? If so, the numeric keypad on the keyboard is active. To return the keypad keys to typing letters, press <NumLock>.

**Battery power seems to run out faster than expected.**

If you are running the computer from the battery rather than the AC adapter, make sure that you set the *Battery Power Saving Mode* field in System Setup to *Maximum Power Saving Mode*. This setting enables the microprocessor and the hard drive to slow down when the computer is idle.

You can also enable other power-saving options through System

the *Installed O/S* field in System Setup is set to *Other*. Check to make sure that the port is enabled in System Setup.

**APCCard does not work correctly.**

Make sure that the PCCard is inserted right side up in the PCCard slot. Check that the card is inserted fully into the slot. If you are using a PCCard modem, check the modem cable connections. If you are using an operating system that is not plug and play compliant, make sure the *Installed O/S* field in System Setup is set to *Other*.

**The System Setup settings are not retained when you turn off the computer.**

The CMOS battery inside the computer may need to be replaced. The CMOS battery provides power to save the system BIOS information when the computer is turned off. Normally, the CMOS battery lasts for several years. Do not attempt to open the chassis and replace this battery yourself or your warranty is void. Have an authorized Samsung service center replace the CMOS battery.

# Using Options

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You can order the following options for your SN6000 Series computer from your authorised Samsung reseller:

- An extra AC adapter.
- An auto/airline adapter that enables you to charge the computer's battery and operate the computer while in an automobile or an airplane.
- An extra battery pack.
- 32, 64 and 128 MB memory modules that enable you to upgrade your computer's memory.
- An external numeric keypad.
- An external CD-ROM drive module.
- An external DVD-ROM drive module.
- Docking options that enable you to use your computer like a desktop computer.

The options that are available may change periodically. Contact your Samsung reseller for updated information on current and new options.

## AC Adapter

---

The optional AC adapter operates in the same way as the adapter that came with your computer does. See "Attaching the AC adapter" on page 7 for information about the AC adapter.

*Figure 23. AC Adapter*





## **Contact your airline for information on using an airline adapter on your flight.**

To use the adapter:

1. Plug the adapter cable into the AC adapter connector on the computer.
2. Connect the adapter to the cigarette lighters socket or the portable computer connector on the airplane.

The light on the adapter is green when the adapter is working properly. The light may be red for a few seconds when you first plug in the adapter or while you use the adapter. This is normal. If the light remains red, check to make sure the adapter is connected correctly.

If the adapter is plugged in and the adapter light does not turn on:

- Check the adapter connections.
- If you are in an automobile, turn on the automobile's ignition to supply power to the adapter. In some vehicles, power to the cigarette lighters socket is always on and you do not need to turn on the ignition.
- If you are in an airplane, ask your flight attendant when power will be activated to the portable computer connector. The connector may not be activated at certain times during your flight.
- If the previous procedures do not activate the adapter, you may need to change the fuse in the adapter. To remove the fuse from the adapter, unscrew the adapter cap with a pair of pliers and remove the cap. Replace the fuse with an 8 amp fuse. In an automobile, you may need to replace the fuse in the cigarette lighters socket.

When you connect the adapter to the cigarette lighter or the airplane connector, the battery starts charging immediately.



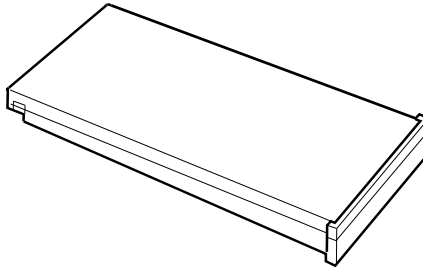
## **To prevent loss of data and possible damage to the computer, unplug the auto/airline adapter when starting and stopping the automobile engine.**



# BatteryPack

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You can order another smart lithium-ion battery pack for your computer. See “Using the Battery” on page 38 for information on the battery.



*Figure 25. Smart Lithium-ion Battery*

# MemoryModules

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You can increase system memory by installing an optional memory module. Your computer comes with a non-removable 32MB SDRAM SODIMM module and can be upgraded by installing 32, 64 or 128MB SDRAM SODIMM modules. The maximum system memory is 160 MB.



**Additional memory modules must only be installed by an Samsung Authorised Reseller. To avoid possible system problems, use only Samsung-approved memory modules in your computer.**

Samsung Resellers, please refer to your Samsung SN6000 Series Service Manual for memory installation instructions.

## External Numeric Keypad

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The external numeric keypad has the same features as the integrated keypad. The external keypad plugs into the PS/2 mouse and keyboard port. See “Connecting Peripheral Devices” on page 24

## External CD-ROM Drive Module

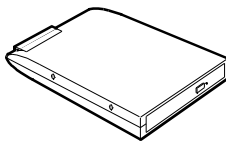
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The CD-ROM drive module can be connected to your computer using the external module cable. See “Connecting External Modules” on page 29 and see “Using the CD-ROM Drive” on page 34 or directions on installing and using the CD-ROM drive.

## External DVD-ROM Drive Module

---

The external DVD-ROM drive module can be connected to your computer using the external module cable. See “Connecting External Modules” on page 29 and see “Using the CD-ROM Drive” on page 34 or directions on installing and using the DVD-ROM drive. There is MPEG2 software included with the drive that will enable you to play DVD movies from the DVD-ROM drive.



*Figure 26. External DVD-ROM Drive Module*



# Specifications

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Table 9 gives the specifications for your computer.

*Table 9. System Specifications*

<b>Dimension</b>	
System with 12.1 TFT LCD	
Width	11.7 in (297 mm)
Height	1.1 in (28 mm)
Depth	8.9 in (225 mm)
Weight (with battery installed)	4.2 lbs (1.9 kg)
LCD viewing area (12.1 TFT)	9.7 x 7.2 in (246 x 184.5 mm)

<b>Environment</b>	
Ambient temperature, operating	41°–95°F (5 °–35°C)
Ambient temperature, storage	14°–112°F (-10 °–44°C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	15–95%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine

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### SmartLithium-IonBattery

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Weight	380g
Nominalopencircuitvoltage	10.8Vcc
Capacity,typical	3200mAh
Chargingtime,approximate,with computerturnedoff	2.5hours
Chargingtime,approximate,with computerturnedon	4hours
Averagebattery life,withpower managementenabled	2.5hours

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### ACAdapter

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Width	2.05in(5.2cm)
Height	1in(2.6cm)
Length	4.33in(11cm)
Weight	(0.21kg)
Operatingvoltage	100-120VAC/200-240VAC
Linefrequency	50/60Hz
Inputcurrent	1.3A100V-0.7A240V
Outputcurrent	2.63A
Outputvoltage	19V

---

# Abbreviations

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Your SN6000 Series documentation uses the following abbreviations:

- A** ..... Amperes
- AC** ..... Alternating current
- APM** ..... Advanced Power Management
- ASK-IR** .... Amplitude shift keyed infrared
- ATA** ..... AT Attachment (refer to the hard-drive interface in an AT-compatible computer)
- BIOS** ..... Basic input/output system
- C** ..... Centigrade
- CD** ..... Compact disc
- CD-ROM** ... Compact disc read-only memory
- cm** ..... Centimeters
- COM** ..... Communication (as in communication port)
- CMOS** .... Complementary metal-oxide semiconductor
- CMYK** .... Cyan-Magenta-Yellow-black
- DC** ..... Direct current
- dB**A ..... Decibels acoustic
- DIN** ..... Deutsche Industrie Normen Ausschuss (German electrical standards association)
- DMA** ..... Direct memory access
- DPMS** ..... Display power-management signaling
- DRAM** ..... Dynamic random access memory
- ECP** ..... Extended capabilities port
- EPP** ..... Enhanced parallel port
- F** ..... Fahrenheit
- FIR** ..... Fast infrared
- ft** ..... Feet
- g** ..... gram
- G** ..... Gravity
- GB** ..... Gigabytes
- hr** ..... hour

**Hz** ..... Hertz  
**IDE** ..... Integrated drive electronics  
**in** ..... Inches  
**I/O** ..... Input/Output  
**IrDA** ..... Infrared Data Association  
**IRQ** ..... Interrupt request line  
**Kb/sec** ..... Kilobits per second  
**KB** ..... Kilobytes  
**kg** ..... Kilograms  
**LAN** ..... Local-area network  
**lbs** ..... Pounds  
**LBA** ..... Logical block addressing  
**LCD** ..... Liquid-crystal display  
**m** ..... Meters  
**mA** ..... Milliampere  
**mAh** ..... Milliampere hour  
**MB** ..... Megabyte  
**Mb/sec** ..... Megabits per second  
**MHz** ..... Megahertz  
**MIDI** ..... Musical instrument digital interface  
**mm** ..... millimeter  
**MPU** ..... Microprocessor unit  
**ms** ..... Millisecond  
**PDF** ..... Portable document format  
**PC** ..... Personal computer  
**PCI** ..... Peripheral component interconnect  
**PCMCIA** ... Personal Computer Memory Card International Association  
**POST** ..... Power-on self-test  
**PS/2** ..... Personal System/2  
**RAM** ..... Random-access memory  
**RGB** ..... Red-Green-Blue  
**ROM** ..... Read-only memory  
**SDRAM** .... Synchronous dynamic random-access memory

**SMART** .... Static random-access memory  
**SRAM** ..... Self-Monitoring, Analysis and Reporting  
Technology  
**SVGA** ..... Supervideographics array  
**TFT** ..... Thin-film transistor  
**USB** ..... Universal serial bus  
**V** ..... Volt  
**VAC** ..... Voltage alternating current  
**VCC** ..... Voltage collector current  
**VDC** ..... Voltage direct current  
**VGA** ..... Videographics array  
**whr** ..... Watt hour  
**XGA** ..... Extended graphics array



# Glossary

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## **AC adapter**

The AC (or alternating current) adapter regulates current coming into your computer from the wall outlet. The current at the wall outlet is alternating current and needs to be changed by the adapter to DC (direct current) before your computer can use it for power.

## **BIOS**

BIOS stands for basic input/output system. The BIOS is software (often called firmware) that is independent of any operating system. It enables the computer to communicate with the screen, keyboard, and other peripheral devices without using programs on the hard disk.

The BIOS on your computer is flash BIOS, which means that it has been recorded on a flash memory chip that can be updated if needed.

## **Boot**

To start your computer. A cold boot resets the entire computer and runs through all computer self-tests. A warm boot clears out computer memory only.

## **Boot disk**

A disk containing operating system programs required to start your computer. A boot disk can be a floppy disk, hard drive, or compact disc.

## **Byte**

The basic unit of measure for computer memory. A character—such as a letter of the alphabet—uses one byte of memory. Computer memory is often measured in kilobytes (1,024 bytes) or megabytes (1,048,576 bytes).

Each byte is made up of eight bits. For more information on bytes and bits, see an introductory book on computers.

## **Cache memory**

Cache is very fast, zero-wait-state memory located between the microprocessor and main memory. Cache reduces the average

time required for the microprocessor to get the data it needs from the main memory by storing recently accessed data in the cache.

### **CardBus**

CardBus technology enables the computer to use 32-bit PC Cards. Hardware in the computer and the Windows 98 operating system provides support for the 32-bit cards. The voltage of 32-bit cards (3.3 volts) is lower than that of 16-bit cards (5 volts). The 32-bit cards can transmit more data at a time than the 16-bit cards, thus increasing their speed.

### **CMOS memory**

CMOS (complementary metal oxide semiconductor) memory is powered by the CMOS battery. The System Setup settings and other parameters are maintained in CMOS memory. Even when you turn your computer off, the information in CMOS memory is saved.

### **COM port**

COM stands for communication. COM ports are the serial ports in your computer.

### **Conventional memory**

The first 640 KB of system memory. Operating systems and application programs can directly access this memory without using memory-management software.

### **CMYK**

A color model in which all colors are described as a mixture of four process colors—Cyan, Magenta, Yellow and Black. CMYK is the standard color model used in offset printing for full-color documents. Printed colors look the same as what appears on the screen.

### **Disc**

A compact disc (CD).

### **Disk**

The device used by the computer to store and retrieve information. *Disk* can refer to a floppy disk, hard disk, or RAM disk.

### **Disk cache**

A software device that accumulates copies of recently used disk sectors in RAM. The application program can then read these

copies without accessing the disk. This, in turn, speeds up the performance of the application.

A cache is a buffer for transferring disk sectors in and out of RAM. Data stored in a disk cache is a copy of data already stored on the physical disk.

### **DMA (direct memory access)**

A method of transferring data from a device to memory without having the data pass through the microprocessor. Using DMA can speed up system performance.

### **Floppy disk**

A removable disk, also called *floppy* or *diskette*.

### **Hard drive**

Also called *fixed disk*. A hard drive is connected to the computer and can be installed or removed. Data written to a hard drive remains until it is overwritten or corrupted.

The 2.5-inch hard drive in your computer was designed for use in a portable computer. Because hard drives in portable computers are smaller than those in desktop computers, their maximum storage capacity may be less than that of desktop hard drives. However, because of their smaller size, the drives handle shock and vibration better than larger drives, which is important for a portable computer.

### **I/O**

Input/output. Refer to peripheral devices, such as printers, that are addressed through an I/O address.

### **I/O address**

I/O stands for input/output. Peripheral devices, such as printers, are addressed through the I/O port address.

### **IRQ (interrupt request line)**

The IRQ is a hardware line that a device uses to signal the microprocessor when the device needs the microprocessor's services. The number of IRQs is limited by industry standards.

### **LCD (liquid-crystal display)**

The LCD screen on your computer differs from the display screen of a desktop monitor. Most desktop monitors use CRT (cathode-ray tube) displays, which work by moving an electron beam across

phosphordotsonthebackofthescreen.Thephosphordotslight uptoshowtheimage.LCDsusealiquid-crystalsolutionbetween twosheetsofpolarizingmaterial.Electriccurrentpassingthrough theliquidalignsthecrystalssothatlightcanorcannotpass throughthem,creatinganimage.

## **MB**

1,024kilobytes.

## **Megabit**

1,048,576bitsorabout128kilobytes.

## **Operating system**

Aprogramthatsupervisesthecomputer'soperation,including handlingI/O.Applicationprogramsanduserscanrequest operating-systemservices.Ausermightrequestoperation-system servicestocopyfilesorformatadisk.Anapplicationprogram mightusetheoperatingsystemtoobtainkeyboardinput,write datatoafile,orwritedata toascreen.

## **PCCard**

PCCardstandsforpersonalcomputercard.ThePersonal ComputerMemoryCardInternationalAssociation(PCMCIA) definesthestandardsusedtodevelopallPCCards.PCCardtypes include:modems,Ethernetadapters,SCSIadapters,ATAcards, andmemorycards.

## **PCslot**

ThePCslotisthehardwareslotinthecomputerwherethePC Cardisplaced.

## **Pixel**

Apixelisanindividualdotinagraphicdisplayedonyour computer.Thepixelsaresoclosetogetherthattheylookasthough theyareconnected.AnLCDscreendisplays thousandsormillions ofpixels.

## **PlugandPlay**

Aplugandplayoperatingsystemautomaticallyconfigures computercomponentstoworkwithyoursystem.Withthistypeof operatingsystem,younormallydonotneedtosetjumperson devicesorsetmemoryaddressesorIRQs.

## **POST**

POST stands for power-on-self-test. POST is a test performed by the computer whenever you turn on the power. POST checks system integrity.

## **RAM (random access memory)**

The computer's system memory, including conventional and extended memory. You can write to and read from RAM. Information stored in RAM is temporary, and is erased when the system is turned off.

## **Refresh rate**

The refresh rate is the rate at which the image on the LCD screen is rewritten to the screen. A fast refresh rate helps keep the image from flickering.

## **Resolution**

The resolution is the sharpness or clarity of the image on your LCD screen. Resolution is measured by the number of pixels the computer's screen can display. For example, a resolution of 800x600 means that the screen can display 800 pixels in row and can display 600 rows. The more pixels displayed, the higher the resolution and the better the image.

## **ROM (read-only memory)**

Permanent computer memory dedicated to a particular function. For example, the instructions for starting the computer when you first turn on power are contained in ROM. You cannot write to ROM. (ROM is not the same as RAM).

## **Sector**

Also known as *disk sector*. The portion of a track that is numbered and can hold a specified number of characters (usually 512KB).

## **Shadow RAM**

A write-protected area of RAM that contains a copy of the BIOS. As the computer boots, the BIOS is copied from its permanent location in ROM to RAM. The BIOS can be executed much faster in RAM than in ROM. The BIOS remains in shadow RAM until you turn off the computer.

**RGB**

A color model generally used by display devices. Colors are described as a mixture of Red, Green and Blue.

**TFT (thin film transistor) LCD**

ATFTLCD uses a separate transistor circuit to control each pixel. This technology provides the best resolution for an LCD screen. A TFTLCD is also sometimes called an active matrix LCD.

**Zoomed video**

Zoomed video technology enables zoom video PC card to transfer data directly from the card to video and audio systems without going through the microprocessor. This process improves video performance. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoom video.

# Recording the Computer Hardware Configuration

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In the spaces provided, write the System Setup program settings. If your computer ever loses configuration information, you can enter the information from this section into System Setup to store it.

## MAIN MENU

Legacy Diskette A:     Disabled            1.44  25MB3            ½

## IDE ADAPTER 1 SUBMENU

### IDE Adapter 1:

Type: \_\_\_\_\_            Cylinders: \_\_\_\_\_

Heads: \_\_\_\_\_            Sectors: \_\_\_\_\_

Multi-Sector Transfers: \_\_\_\_\_

LBAMode Control:             Enabled             Disabled

32Bit I/O:                       Enabled             Disabled

Transfer Mode:             Standard

FastPIO1                       FastPIO2

FastPIO3                       FastPIO4

FPIO3/DMA1                   PIO4/DMA2

UltraDMA:                       Mode0             Mode1

Mode2                       Disabled

## IDE ADAPTER 2 SUBMENU

### IDE Adapter 2:

Type: \_\_\_\_\_            Cylinders: \_\_\_\_\_

Heads: \_\_\_\_\_            Sectors: \_\_\_\_\_

Multi-Sector Transfers: \_\_\_\_\_

LBAMode Control:             Enabled             Disabled

32Bit I/O:                       Enabled             Disabled

Transfer Mode:             Standard

FastPIO1                       FastPIO2  
 FastPIO3                       FastPIO4  
 FPIO3/DMA1                   PIO4/DMA2  
**UltraDMA:**             Mode0                       Mode1  
                                  Mode2                       Disabled

**MEMORYCACHESUBMENU**

**MemoryCache:**             Enabled                   Disabled  
**CacheExtendedMemoryArea:**     WriteBack                   Incached  
    WriteThrough               WriteProtect  
**CacheD400-D7FF**             Disabled                   WriteThrough  
    WriteProtect               WriteBack  
**CacheD800-DBFF**             Disabled                   WriteThrough  
    WriteProtect               WriteBack

**ADVANCEDMENU**

**PS/2MOUSECONFIGURATIONSUBMENU**

**MouseConfiguration:**         Enabled                   Disabled  
**MouseOperationMode:**        SingleMouse               DualMouse

**I/ODEVICECONFIGURATIONSUBMENU**

**SerialportA:**     Enabled     Disabled     Auto  
                         **BaseI/Oaddress:**     3F8,IRQ4     F8,IRQ3  
    3E8,IRQ4     2E8,IRQ3  
**SerialportB:**     Enabled     Disabled  
                         **BaseI/Oaddress:**     3F8,IRQ4     F8,IRQ3  
    3E8,IRQ4     2E8,IRQ3  
**Mode:**     FIR     Normal     IrDA     ASK-IR  
**DMAChannel:**     DMA1     DMA3



**Parallelport:**       Enabled       Disabled       Auto  
**Mode:**             Bi-directional       Outputonly  
                          EPP                     ECP  
**BaseI/Oaddress:**     378,IRQ7             78,IRQ5  
                          278,IRQ7             278,IRQ5  
                          3BC,IRQ7             3BC,IRQ5  
**DMAChannel:**       DMA1             DMA2             DMA3  
**FloppyDiskController:**     Enabled       Disabled       Auto

**InstalledO/S:**             Win95/Win98APM       Other  
                          Win98ACPI/WinNT5.0

**Boot-timeLogoScreen:**     Enabled             Disabled  
**QuickBootMode:**         Enabled             Disabled  
**CPUBIOSUpdate:**         Enabled             Disabled  
**USBDevice:**             Enabled             Disabled  
**ScreenExpansion:**       Enabled             Disabled  
**TVStandard:**             NTSC             PAL             PAL-M  
                          PAL-60             NTSC-J             SCART-PAL  
**LocalBusIDEadapter:**     Both             Disabled  
                          Primary             Secondary  
**LargeDiskAccessMode:**     DOS             Other

## SECURITYMENU

Passwordonboot:  Enabled  Disabled  
Fixeddiskbootsector:  Normal  WriteProtect  
Disketteaccess:  User  Supervisor

Viruscheckreminder:  Daily  Weekly  Monthly  
 Disabled  
Systembackupreminder:  Daily  Weekly  Monthly  
 Disabled

## POWERMENU

PowerSavingsMode:  Max.PowerSavings  Max.Performance

StandbyTimeout:  Off Time \_\_\_\_\_

RestMode:  PowerOnSuspend  SaveToDisk

RestTimeout:  Off Time \_\_\_\_\_

ResumeOnTime:  On  Off

ResumeTime: \_\_\_\_\_

## BOOTMENU

FloppyCheck:  Enabled  Disabled

SummaryScreen:  Enabled  Disabled

## BOOTDEVICEPRIORITYSUBMENU

Booptoption1: \_\_\_\_\_

Booptoption2: \_\_\_\_\_

Booptoption3: \_\_\_\_\_

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